

Data Evaluation Record on the Acute Toxicity of Pymetrozine to Terrestrial Vascular Plants: Seedling Emergence

EPA MRID Number 49637001

Data Requirement:	PMRA Data Code: 9.8.4 (TGAI) or 9.8.6 (EP)
	EPA DP Barcode: 428058
	OECD Data Point: IIA 8.12 (TGAI) and IIIA 10.8.1.1 (EP)
	EPA Guideline: 850.4100

Test material: Pymetrozine WG (50)

Purity: 48.0%

Common name: Pymetrozine

Chemical name: IUPAC: (E)- 6-methyl-4-[-(pyridin-3-ylmethylene)amino]- 4,5-dihydro-2H-[1,2,4]triazin-3-one
CAS name: 1,2,4-triazin-3(2H)-one, 4,5-dihydro-6-methyl-4-[(3-pyridinylmethylene)amino]-, (E)-
CAS No.: 123312-89-0

Synonyms: A9364J, Plenum 50 WG

Primary Reviewer: Dana Worcester
Senior Scientist, CDM Smith/CSS-Dynamac JV

Signature: 
Date: 2/20/17

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Date: 3/02/17

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EPA/OPP/EFED/ERB3

Signature:
Date: 03/07/18

This Data Evaluation Record may have been altered by the Environmental Fate and Effects Division subsequent to signing by CDM/CSS-Dynamac JV personnel

EPA PC Code 101103

Date Evaluation Completed: 03/07/18

CITATION: Martin, J.A. Pymetrozine WG (50) (A9364J) - Seedling Emergence Test. Final Report. Unpublished study performed by Smithers Viscient, Wareham, Massachusetts. Laboratory Report Number: 1781.7036; Task Number: TK0204685. Study sponsored by Syngenta Crop Protection, LLC, Greensboro, North Carolina. Study completed May March 30, 2015.

DISCLAIMER: This document provides guidance for EPA and PMRA reviewers on how to complete a data evaluation record after reviewing a scientific study concerning the acute toxicity of a pesticide to terrestrial vascular plants. It is not intended to prescribe conditions to any external party for conducting this study nor to establish absolute criteria regarding the assessment of whether the study is scientifically sound and whether the study satisfies any applicable data requirements. Reviewers are expected to review and to determine for each study, on a case-by-case basis, whether it is scientifically sound and provides sufficient information to satisfy applicable data requirements. Studies that fail to meet any of the conditions may be accepted, if appropriate; similarly, studies that meet all of the conditions may be rejected, if appropriate. In sum, the reviewer is to take into account the totality of factors related to the test methodology and results in determining the acceptability of the study. Evaluation Record may have been altered by the Environmental Fate and Effects Division subsequent to signing by CDM/CSS-Dynamac JV personnel.

EXECUTIVE SUMMARY:

The effect of **Pymetrozine WG (50)** on the seedling emergence of monocot (corn, *Zea mays*; oat, *Avena sativa*; onion, *Allium cepa*, and ryegrass, *Lolium perenne*) and dicot (common bean, *Phaseolus vulgaris*; cucumber, *Cucumis sativus*; oilseed rape, *Brassica napus*; radish, *Raphanus sativu*; soybean, *Glycine max*; and tomato,

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Lycopersicon esculentum) crops was studied at a nominal concentration of 0 (negative), and 0.37 lb ai/A. The measured concentrations were <0.027 (control) and 0.35 lb ai/A.

The growth medium used in the seedling emergence test was natural soil mixed with washed silica sand (organic matter 1.9%). On day 14 the surviving plants per pot were recorded and cut at soil level for measuring the plant dry weight.

Negative control emergence ranged from 70 to 100%. The reviewer determined there were no inhibitions in emergence compared to the negative control were also not significant (Equal Variance t Two-Sample test or Wilcoxon Rank Sum Two-Sample test, p>0.05).

The reviewer's definition of survival was based on the number planted; by this definition, survival in the negative control ranged from 70-100%. The reviewer determined the inhibitions in survival compared to the negative control were not significant (Equal Variance t Two-Sample test or Wilcoxon Rank Sum Two-Sample test, p>0.05).

There were no significant inhibitions in dry weight compared to the negative control (Equal Variance t Two-Sample test or Wilcoxon Rank Sum Two-Sample test, p>0.05).

The reviewer determined there were a significant inhibition of 13% in soybean height compared to the negative control (Equal Variance t Two-Sample test, p=0.0199).

The reviewer's analysis determined there was a statistically-significant inhibition in soybean height; there were no significant inhibitions in emergence, survival or dry weight in any other species tested compared to the negative control (p>0.05), resulting in a NOAEC value of <0.35 lb ai/A for soybean height and 0.35 lb ai/A for all other species and endpoints. This test was conducted with a single test concentration (Tier I), and the most sensitive monocot and dicot species could not be determined. The reviewer found a significant inhibition in soybean based on height; however, the effect was ≤25%.

The phytotoxic effects were ≤5% in all species.

Maximum Labeled Rate: 350 g ai/ha (0.3125 lb ai/A)

Results Synopsis

Monocot

Most sensitive monocot: Could not be determined; Tier I

NOAEC: 0.35 lb ai/A

Most sensitive dicot: Could not be determined; Tier I

NOAEC: <0.35 lb ai/A for soybean based on height; 0.35 lb ai/A for all other dicot species.

This study is scientifically sound and is classified as **acceptable**.

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Table 1 (Tier I studies). Summary of most sensitive parameters by species.

Species	Emergence			Survival		
	Control	Treatment	%difference	Control	Treatment	%difference
Bean	90	93	-2.78	90	90	0
Corn	93	90	2.7	93	90	2.7
Cucumber	80	83	-3.12	78	83	-6.45
Oat	90	93	-2.78	90	93	-2.78
Oilseed rape	95	98	-2.63	95	98	-2.63
Onion	93	85	8.11	93	85	8.11
Radish	100	100	0	100	100	0
Ryegrass	83	88	-6.06	83	88	-6.06
Soybean	70	95	-35.7	70	95	-35.7
Tomato	98	90	7.69	98	90	7.69

Species	Shoot length (cm)			Dry weight (g)		
	Control	Treatment	%difference	Control	Treatment	%difference
Bean	13	14.5	-11.4	0.241	0.291	-20.4
Corn	43	41.6	3.3	0.278	0.265	4.46
Cucumber	4.8	4.91	-2.29	0.198	0.206	-4.22
Oat	37.4	35.8	4.27	0.0898	0.0841	6.35
Oilseed rape	5.36	5.34	0.37	0.0503	0.0518	-2.84
Onion	10.2	10	2.15	0.00836	0.00902	-7.89
Radish	2.81	2.8	0.36	0.0897	0.0871	2.9
Ryegrass	19.1	19.1	0.11	0.0182	0.0161	11.4
Soybean	20.5	17.8	13.1 ¹	0.337	0.32	5.13
Tomato	7.15	6.73	5.87	0.047	0.0571	-21.6

¹ Significant inhibition in soybean height (Equal Variance t test, p=0.0199).

I. MATERIALS AND METHODS

GUIDELINE FOLLOWED:

This study was conducted in compliance with OECD 208 and EPA 850.4100. The reviewer evaluated the study methods according to EPA Ecological Effects Test Guidelines, OCSPP Guideline 850.4100: Seedling Emergence and Seedling Growth (2012). Deficiencies and deviations were noted by the reviewer.

1. The study author used 8 seeds per replicate over 5 replicates for oat, onion and ryegrass. The study criteria suggest planting 10 seeds per replicate, OCSPP guidance suggests a minimum of 4 seeds per replicate per treatment and a minimum of 40 seeds per treatment, while OECD recommends a minimum of 5 seeds per replicate.
2. The physico-chemical properties of the test material were not reported.
3. The pH, CEC, moisture and organic carbon of the test soil was not reported.
4. The temperature ranged from 19-28°C during the day with a mean of 22 ± 1 and at night 19-23°C with a mean of 21 ± 1; light intensity ranged from 110-890 μmol/m²/sec with a mean of 410 ± 270 μmol/m²/sec; humidity ranged from 15-79% with a mean of 48%; OCSPP guidance suggests temperature 25/20°C (daytime/nighttime) ± 6°C; light intensity 350 ± 50 μmol/m²/sec and humidity 70% (daytime) ± 15%.

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5. The study author stated that, per the study protocol, the concentration to be tested was 6 oz/acre, based on the maximum application rate of 6 oz formulation/acre (or 420 g formulation/ha). In calculating the stock solution to provide 420 g/ha, the result was inadvertently adjusted for active ingredient. This calculation yielded an application rate of 420 g a.i./ha, rather than 420 g formulation/ha (equivalent to 202 g a.i./ha). The study author noted that, as a result, the exposure rate for all species tested was 420 g a.i./ha, approximately double the maximum application rate. However, the maximum application rate for pymetrozine is actually 350 g a.i./ha (0.3125 lb a.i./A), so the tested application rate was not double the maximum rate as reported.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided. This study was conducted in compliance with USEPA (40 CFR, Part 160) and OECD Good Laboratory Practice Standards (1998).

A. MATERIALS:

1. Test Material:	Pymetrozine WG 50
Description:	Beige granules
Lot No./Batch No.:	SMO3B0002
Purity:	48.0%
Stability of compound under test conditions:	Analytical determinations based on measured concentration in the initial spray solution yielded recoveries of 91% of nominal (n = 3). Analytical determinations based on measured in the post spray solution yielded recoveries of 91-102% of nominal (n = 3). Recoveries of fortified samples in spray solution were 95-96% (n=2). <i>(OECD recommends chemical stability in water and light)</i>
Storage conditions of test chemicals:	The test material was stored in a dark, ventilated cabinet.

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Table 2. Physical/chemical properties of Pymetrozine.

Parameter	Values	Comments
Water solubility at 20°C	Not reported	
Vapor pressure	Not reported	
UV absorption	Not reported	
pKa	Not reported	
Kow	Not reported	

2. Test organism:

Monocotyledonous species: Corn (*Zea mays*, Truckers Favorite), Oat (*Avena sativa*, AK Mustang), Onion (*Allium cepa*, Yellow Granex) and Perennial Ryegrass (*Lolium perenne*, LINN); *EPA recommends four monocots in two families, including corn.*

Dicotyledonous species: Common Bean (*Phaseolus vulgaris*, Velour), Cucumber (*Cucumis sativus*, Spacemaster); Oilseed Rape (*Brassica napus*, Wichita), Radish (*Raphanus sativus*, Cherriette Hybrid), Soybean (*Glycine max*, ENVY); and Tomato (*Lycopersicon esculentum*, Celebrity Hybrid); *EPA recommends six dicots in four families, including soybean and a root crop.*

OECD recommends a minimum of three species selected for testing, at least one from each of the following categories: Category 1: ryegrass, rice, oat, wheat, and sorghum; Category 2: mustard, rape, radish, turnip, and Chinese cabbage; Category 3: vetch, mung bean, red clover, fenugreek, lettuce, and cress.

Seed source: Bean, onion and radish were supplied by Park Seed Company; corn was supplied by Carolina Biological Supply Company; cucumber was supplied by Burpee; oat and ryegrass were supplied by Granite Seed; oilseed rape was supplied by Johnston Seed Company; soybean was supplied by Johnny's Selected Seeds and tomato was supplied by Tomato Grower Supply Company.

Prior seed treatment/sterilization: The seeds were not treated with any type of fungicides, insecticides, or any pesticides.

Historical % germination of seed: Bean, 98%, corn and oilseed rape, 90%; oat, 97%; ryegrass, 95%; soybean, 88%; cucumber, onion, radish and tomato were NA.

Seed storage, if any: Refrigerated in the dark.

B. STUDY DESIGN:

1. Experimental Conditions

- a. Limit test: None.
- b. Range-finding study: None.
- c. Definitive Study

Table 3: Experimental Parameters - Seedling Emergence.

Parameters	Seedling Emergence
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	Details	Remarks
		Criteria
Duration of the test	14 days	<p><i>Recommended test duration is 14-21 days.</i></p> <p><i>OECD recommends that the test be terminated no sooner than 14 days after 50 percent of the control seedlings have emerged</i></p>
Number of seeds/plants/species/replicate	Onion, ryegrass and oat: Five pots (replicates) with 8 seeds per pot All other species: Ten pots (replicates) with 4 seeds per pot.	<p><i>Ten seeds per replicate should be used.</i></p> <p><i>OECD recommends a minimum of five seeds planted in each replicate within 24 hours of incorporation of the test substance. All seeds of each species for each test should be of the same size class. The seed should not be imbibed.</i></p>
<u>Number of replicates</u> Control: Adjuvant control: Treated:	Onion, oat, ryegrass 5 N/A 5 All other species 10 N/A 10	<p><i>Four replicates per dose should be used.</i></p> <p><i>OECD recommends a minimum of four replicates per treatment</i></p>
<u>Test concentrations (lb ai/A)</u> Nominal: Measured:	0 (negative), and 0.37 lb ai/A <0.027 and 0.35 lb ai/A	<p><i>Five test concentrations should be used with a dose range of 2X or 3X progression</i></p> <p><i>OECD recommends three concentrations, preferably with application rates equivalent to 0.0 (control), 1.0, 10.0 and 100 mg substance per kg of oven-dried soil.</i></p>
<u>Method and interval of analytical verification</u> LOQ: LOD:	Spray solutions were analyzed by HPLC/UV using a Phenomenex Synergi Hydro-RP column. 0.027 lb ai/A N/A	

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Parameters	Seedling Emergence	
	Details	Remarks
		<i>Criteria</i>
Adjuvant (type, percentage, if used)	N/A	
<u>Test container (pot)</u> Size/Volume Material: (glass/polystyrene)	Pots were 12 cm tall and had a bottom diameter of 12 cm and a top diameter of 14 cm. Polypropylene pots	<i>Non-porous containers should be used.</i> <i>OECD recommends that non-porous plastic or glazed pot be used.</i>
Growth facility	Greenhouse	
Method/depth of seeding	Impartially planted at a depth of 1-2 cm.	
<u>Test material application</u> Application time including the plant growth stage Number of application Application interval Method of application	After planting. 1 N/A- single application The test material was applied using an atomizing spray nozzle (8001-E-SS nozzle) at 20 psi.	
<u>Details of soil used</u> Geographic location Depth of soil collection Soil texture % sand	Rochester, Massachusetts N/A Sand 95	Loam soil mixed with 70% washed silica sand. Organic matter 1.9%

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Parameters	Seedling Emergence	
	Details	Remarks
		Criteria
% silt % clay pH: % organic carbon CEC Moisture at 1/3 atm (%)	2 3 N/A N/A Not reported Not reported	<p><i>Soil mixes containing sandy loam, loam, or clay loam soil with no greater than 2% organic matter are preferable. Glass beads, rock wool, and 100% acid washed sand are not preferred.</i></p> <p><i>OECD prefers the soil to be sieved (0.5 cm) to remove coarse fragments. Carbon content should not exceed 1.5% (3% organic matter). Fine particles (under 20um) makeup should be between 10 and 20%. The recommended pH is between 5.0 and 7.5.</i></p>
Details of nutrient medium, if used	N/A	
<u>Watering regime and schedules</u> Water source/type: Volume applied: Interval of application: Method of application:	Deionized water. Not reported. Approximately daily. The plants were bottom watered.	<p><i>EPA prefers that bottom watering be utilized for seedling emergence studies so that the chemical is not leached out of the soil during the test.</i></p>
Any pest control method/fertilization, if used	400 mg/L Peter's 20-20-20 was prepared using deionized water. 100 mL was provided twice weekly.	
<u>Test conditions</u> Temperature: Photoperiod: Light intensity and quality: Relative humidity:	Day: mean: $22 \pm 1.0^{\circ}\text{C}$, range 19-28°C; Night: mean: $21 \pm 1.0^{\circ}\text{C}$, range 19-23°C. 16L:8D Artificial light supplemented with natural sunlight. Mean 410; range 110-890 $\mu\text{mol/m}^2/\text{sec}$ Mean: 48%; range 15-79%	<p><i>EPA prefers that the cold vs warm loving plants be tested in two separate groups to optimize plant growth.</i></p> <p><i>OECD prefers that the temperature, humidity and light conditions be suitable for maintaining normal growth of each species for the test period.</i></p>

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Parameters	Seedling Emergence	
	Details	Remarks
		<i>Criteria</i>
Reference chemical (if used) Name: Concentrations:	N/A	
Other parameters, if any	None	

2. Observations:

Table 4: Observation Parameters - Seedling Emergence.

Parameters	Seedling Emergence	
	Details	Remarks
Parameters measured (e.g., number of germinated seeds, emerged seedlings, plant height, dry weight or other endpoints)	- Emergence - Survival - Dry weight - Phytotoxicity	
Measurement technique for each parameter	Emergence and phytotoxicity were visually determined. Survival was defined as the percent of emerged. Plant weight was determined by measuring the total weight at termination.	
Observation intervals	Each pot was inspected weekly and phytotoxicity assessments performed. Plant dry weight was recorded at study termination.	
Other observations, if any	N/A	
Were raw data included?	Yes	
Phytotoxicity rating system, if used	Percent of plants affected.	

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II. RESULTS and DISCUSSION:

A. INHIBITORY EFFECTS:

1. Seedling Emergence:

The study author found negative control emergence ranged from 70 to 100%. The study author determined the inhibitions in emergence were not significant ($p>0.05$). The reviewer determined the inhibitions in emergence compared to the negative control were also not significant (Equal Variance t Two-Sample test or Wilcoxon Rank Sum Two-Sample test, $p>0.05$).

The study author calculated survival based on the number of plants emerged; by this definition, survival in the negative control was 95-100%. The study author reported no inhibitions in survival were significant ($p>0.05$). The reviewer's definition of survival was based on the number planted; by this definition, survival in the negative control ranged from 70-100%. The reviewer determined the inhibitions in survival compared to the negative control were also not significant (Equal Variance t Two-Sample test or Wilcoxon Rank Sum Two-Sample test, $p>0.05$).

The study author determined there were no significant effects in dry weight compared to the negative control for any species tested (Equal Variance Two-Sample t-test). The reviewer also determined there were no significant inhibitions in dry weight compared to the negative control (Equal Variance t Two-Sample test or Wilcoxon Rank Sum Two-Sample test, $p>0.05$).

The study author and reviewer determined there was a significant inhibition of 13% in soybean height compared to the negative control (Equal Variance t Two-Sample test, $p=0.0199$). There were no significant effects in other species tested.

This test was conducted with a single test concentration (Tier I), and the most sensitive monocot and dicot species could not be determined. The study author determined a NOAEC of 0.37 lb ai/A for all species and endpoints except for soybean. The study author stated that since this observed effect represented only a 13% reduction in shoot dry weight at twice the recommended maximum application rate, it is unlikely that a significant effect would be observed at the recommended maximum application rate. Therefore, no further testing was conducted to define the NOEC for soybean. However, as noted Section 1 under study discrepancies, the maximum application rate for pymetrozine is actually 350 g a.i./ha (0.3125 lb a.i./A), so the tested application rate was not double the maximum rate as reported.

The phytotoxic effects were $\leq 5\%$ in all species.

B. REPORTED STATISTICS:

Percent effect was determined for emergence, survival, length and dry weight. Normality was determined using Shapiro-Wilks Test (US EPA 2002) and homogeneity using Variance Ratio F Test. Statistical analysis was performed by an Equal Variance Two-Sample t-Test or Wilcoxon's Rank Sum Two-Sample Test. Determinations were made to the 95% or 99% level of certainty. CETIS™ (Ives, 2013) was used to assist in these computations. Nominal concentrations were used for all analyses.

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Table 5: Effect of Pymetrozine on 14-Day Seedling Emergence

Species	Results summary for biomass (lbs ai/A)									
	weight (mg)	NOAEC	IC ₀₅	95%CI	IC ₂₅	95%CI	IC ₅₀	95%CI	slope	95%CI
Bean	0.241-0.291	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Corn	0.265-0.278	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Cucumber	0.198-0.206	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Oat	0.0841-0.0898	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Oilseed rape	0.0503-0.0518	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Onion	0.00836-0.00902	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Radish	0.0871-0.0897	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Ryegrass	0.0161-0.0182	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Soybean	0.32-0.337	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Tomato	0.047-0.0572	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A

ND- Not determined. N/A- Not applicable.

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Table 5a: Effect of Pymetrozine on 14-Day Seedling Emergence

Species	Results summary for height (lbs ai/A)									
	height (cm)	NOAEC	IC ₀₅	95%CI	IC ₂₅	95%CI	IC ₅₀	95%CI	slope	95%CI
Bean	13-14.5	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Corn	41.6-43	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Cucumber	4.8-4.91	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Oat	35.8-37.4	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Oilseed rape	5.34-5.36	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Onion	10-10.2	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Radish	2.8-2.81	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Ryegrass	19.1	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Soybean ¹	17.8-20.5	<0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Tomato	6.73-7.15	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A

ND- Not determined. N/A- Not applicable.

1 Significant decrease in soybean height, inhibition of 13% compared to the negative control (t-test, p = 0.0199).

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Table 5b: Effect of Pymetrozine on 14-Day Seedling Emergence

Species	Results summary for emergence (lbs ai/A)									
	%	NOAEC	EC ₀₅	95%CI	EC ₂₅	95%CI	EC ₅₀	95%CI	slope	95%CI
Bean	90-93	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Corn	90-93	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Cucumber	80-83	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Oat	90-93	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Oilseed rape	95-98	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Onion	85-93	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Radish	100	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Ryegrass	83-88	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Soybean	70-95	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Tomato	90-98	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A

ND- Not determined. N/A- Not applicable.

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Table 5c: Effect of Pymetrozine on 14-Day Seedling Emergence

Species	Results summary for survival (lbs ai/A); based on # emerged									
	%	NOAEC	EC ₀₅	95%CI	EC ₂₅	95%CI	EC ₅₀	95%CI	slope	95%CI
Bean	98-100	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Corn	100	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Cucumber	95-100	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Oat	100	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Oilseed rape	100	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Onion	100	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Radish	100	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Ryegrass	100	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Soybean	100	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A
Tomato	100	0.37	ND	N/A	>0.37	N/A	ND	N/A	N/A	N/A

ND- Not determined. N/A- Not applicable.

Mid-study emergence											
Control	Bean	Corn	Cucumber	Oat	Oilseed rape	Onion	Radish	Ryegrass	Soybean	Tomato	Formulation Blank
Not reported											NA

Plant Injury Index*											
Control	Bean	Corn	Cucumber	Oat	Oilseed rape	Onion	Radish	Ryegrass	Soybean	Tomato	Formulation Blank
0-5	0-3	0	0-5	0	0	0	0	0	0	0	NA

Data Evaluation Record on the Acute Toxicity of Pymetrozine to Terrestrial Vascular Plants: Seedling Emergence

EPA MRID Number 49637001

* Percent of affected plants.

C. VERIFICATION OF STATISTICAL RESULTS BY THE REVIEWER:

The reviewer analyzed all endpoints by comparing the negative control with the treatment group using the Equal Variance Two-Sample t test; if data were non-parametric, the Wilcoxon Rank Sum Two-Sample test was used. These analyses were conducted using CETIS version 1.8.7.12 and backend settings approved for use by EFED on 10/20/2015. The measured concentrations were used for analysis.

Table 6: Effect of Pymetrozine on 14-Day Seedling Emergence

Species	Results summary for biomass (lbs ai/A)									
	weight (mg)	NOAEC	IC ₀₅	95%CI	IC ₂₅	95%CI	IC ₅₀	95%CI	slope	95%CI
Bean	0.241-0.291	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Corn	0.265-0.278	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Cucumber	0.198-0.206	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Oat	0.0841-0.0898	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Oilseed rape	0.0503-0.0518	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Onion	0.00836-0.00902	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Radish	0.0871-0.0897	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Ryegrass	0.0161-0.0182	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Soybean	0.32-0.337	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Tomato	0.047-0.0572	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A

ND- Not determined. N/A- Not applicable.

Data Evaluation Record on the Acute Toxicity of Pymetrozine to Terrestrial Vascular Plants: Seedling Emergence

EPA MRID Number 49637001

Table 6a: Effect of Pymetrozine on 14-Day Seedling Emergence

Species	Results summary for height (lbs ai/A)									
	height (cm)	NOAEC	IC ₀₅	95%CI	IC ₂₅	95%CI	IC ₅₀	95%CI	slope	95%CI
Bean	13-14.5	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Corn	41.6-43	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Cucumber	4.8-4.91	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Oat	35.8-37.4	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Oilseed rape	5.34-5.36	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Onion	10-10.2	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Radish	2.8-2.81	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Ryegrass	19.1	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Soybean ¹	17.8-20.5	<0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Tomato	6.73-7.15	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A

ND- Not determined. N/A- Not applicable.

1 Significant decrease in soybean height, inhibition of 13% compared to the negative control (t-test, p = 0.0199).

Data Evaluation Record on the Acute Toxicity of Pymetrozine to Terrestrial Vascular Plants: Seedling Emergence

EPA MRID Number 49637001

Table 6b: Effect of Pymetrozine on 14-Day Seedling Emergence

Species	Results summary for emergence (lbs ai/A)									
	%	NOAEC	EC ₀₅	95%CI	EC ₂₅	95%CI	EC ₅₀	95%CI	slope	95%CI
Bean	90-93	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Corn	90-93	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Cucumber	80-83	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Oat	90-93	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Oilseed rape	95-98	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Onion	85-93	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Radish	100	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Ryegrass	83-88	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Soybean	70-95	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Tomato	90-98	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A

ND- Not determined. N/A- Not applicable.

Data Evaluation Record on the Acute Toxicity of Pymetrozine to Terrestrial Vascular Plants: Seedling Emergence

EPA MRID Number 49637001

Table 6c: Effect of Pymetrozine on 14-Day Seedling Emergence

Species	Results summary for survival (lbs ai/A); based on # planted									
	%	NOAEC	EC ₀₅	95%CI	EC ₂₅	95%CI	EC ₅₀	95%CI	slope	95%CI
Bean	90	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Corn	90-93	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Cucumber	78-83	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Oat	90-93	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Oilseed rape	95-98	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Onion	85-93	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Radish	100	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Ryegrass	83-88	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Soybean	70-95	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A
Tomato	90-98	0.35	ND	N/A	ND	N/A	ND	N/A	N/A	N/A

ND- Not determined. N/A- Not applicable.

Mid-study emergence												
Control	Bean	Corn	Cucumber	Oat	Oilseed rape	Onion	Radish	Ryegrass	Soybean	Tomato	Formulation Blank	
Not reported												NA

Plant Injury Index*												
Control	Bean	Corn	Cucumber	Oat	Oilseed rape	Onion	Radish	Ryegrass	Soybean	Tomato	Formulation Blank	
0-50	0-25	0	0-50	0	0	0	0	0	0	0	NA	

* Percent of affected plants.

Data Evaluation Record on the Acute Toxicity of Pymetrozine to Terrestrial Vascular Plants: Seedling Emergence

EPA MRID Number 49637001

Most sensitive monocot: Could not be determined; Tier I

NOAEC: 0.35 lb ai/A

Most sensitive dicot: Could not be determined; Tier I

NOAEC: <0.35 lb ai/A for soybean based on height; 0.35 lb ai/A for all other dicot species and endpoints.

D. STUDY DEFICIENCIES:

1. The study author used 8 seeds per replicate over 5 replicates for oat, onion and ryegrass. The study criteria suggest planting 10 seeds per replicate, OCSPP guidance suggests a minimum of 4 seeds per replicate per treatment and a minimum of 40 seeds per treatment, while OECD recommends a minimum of 5 seeds per replicate.
2. The physico-chemical properties of the test material were not reported.
3. The pH, CEC, moisture and organic carbon of the test soil was not reported.
4. The temperature ranged from 19-28°C during the day with a mean of 22 ± 1 and at night 19-23°C with a mean of 21 ± 1; light intensity ranged from 110-890 µmol/m²/sec with a mean of 410 ± 270 µmol/m²/sec; humidity ranged from 15-79% with a mean of 48%; OCSPP guidance suggests temperature 25/20°C (daytime/nighttime) ± 6°C; light intensity 350 ± 50 µmol/m²/sec and humidity 70% (daytime) ± 15%
5. The study author stated that, per the study protocol, the concentration to be tested was 6 oz/acre, based on the maximum application rate of 6 oz formulation/acre (or 420 g formulation/ha). In calculating the stock solution to provide 420 g/ha, the result was inadvertently adjusted for active ingredient. This calculation yielded an application rate of 420 g a.i./ha, rather than 420 g formulation/ha (equivalent to 202 g a.i./ha). The study author noted that, as a result, the exposure rate for all species tested was 420 g a.i./ha, approximately double the maximum application rate. It is noted, however, that the maximum application rate for pymetrozine is actually 350 g a.i./ha (0.3125 lb a.i./A), so the tested application rate was not double the maximum rate.

E. REVIEWER'S COMMENTS:

The study author and reviewer's findings were in agreement. The reviewer's analysis determined there was a statistically-significant inhibition in soybean height; there were no significant inhibitions in emergence, survival or dry weight in any other species tested compared to the negative control ($p>0.05$), resulting in a NOAEC value of <0.35 lb ai/A for soybean height and 0.35 lb ai/A for all other species and endpoints. This test was conducted with a single test concentration (Tier I), and the most sensitive monocot and dicot species could not be determined. The reviewer's results are presented in the Executive Summary and Conclusions sections of this DER.

The in-life portion of this study was initiated on October 31, 2014 and completed November 26, 2014.

F. CONCLUSIONS:

This study is scientifically sound and is classified as acceptable. The most sensitive monocot and dicot species could not be determined because this study was conducted as a Tier I test. Soybean height was significantly affected by the test material. However, the inhibition for soybean height was ≤25%.

Data Evaluation Record on the Acute Toxicity of Pymetrozine to Terrestrial Vascular Plants: Seedling Emergence

EPA MRID Number 49637001

Most sensitive monocot and EC₂₅: Could not be determined; Tier I
Most sensitive dicot and EC₂₅: Could not be determined; Tier I

III. REFERENCES:

1. Ives, Michael, 2013. CETIS, Comprehensive Environmental Toxicity Information System™. User's Guide. Tidepool Scientific Software, McKinleyville, California.
2. OECD, 1998. OECD Series on Principles of Good Laboratory Practice and Compliance. Monitoring. Number 1. OECD Principles on Good Laboratory Practice (as revised in 1997). Environment Directorate Chemicals Group and Management Committee. ENV/MC/CHEM(98)17. OECD Paris. France. 41 pp.
3. OECD, 2006. OECD Guidelines for the Testing of Chemicals. Terrestrial Plant Test 208: Seedling Emergence and Seedling Growth Test.
4. U.S. EPA, 1989. Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); Good Laboratory Practice Standards; Final Rule (40 CFR, Part 160). Federal Register, 48 (230); 34052-34074.
5. U.S. EPA, 2002. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to freshwater organisms. Third edition. Office of Water, U. S. Environmental Protection Agency, Washington, DC 20460. EPA/821/R-02/013.
6. U.S. EPA, 2012. Office of Chemical Safety and Pollution Prevention. Ecological Effects Test Guideline, OCSPP 850.4100. Seedling Emergence. EPA 712-C-12-011. January 2012. U.S. Environmental Protection Agency, Washington, D.C.

CETIS Summary Report

Report Date:

16 Feb-17 07:00 (p 1 of 1)

Test Code:

49637001 bean | 07-6935-6205

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)**Smithers Viscient**

Batch ID: 01-8716-3172	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date:	Species: Phaseolus vulgaris	Brine:
Duration: NA	Source: Park Seed Co.	Age:
Sample ID: 04-2114-0851	Code: 49637001 bean	Client: CDM Smith - D. Worcester
Sample Date: 06 Oct-14	Material: Pymetrozine	Project:
Receive Date:	Source: Syngenta	
Sample Age: NA	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
02-4775-8410	Mean Height	0.35	>0.35	NA	9.22%		Equal Variance t Two-Sample Test
00-1097-2377	Mean Weight	0.35	>0.35	NA	13.9%		Equal Variance t Two-Sample Test
16-5726-2148	Percent Emerged	0.35	>0.35	NA	12.9%		Wilcoxon Rank Sum Two-Sample Test
12-4482-5014	Percent Survived	0.35	>0.35	NA	13.2%		Wilcoxon Rank Sum Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	13	11.8	14.2	10.8	16.3	0.521	1.65	12.7%	0.0%
0.35		10	14.5	13.5	15.5	12.7	17	0.455	1.44	9.93%	-11.4%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.241	0.21	0.272	0.186	0.337	0.0137	0.0433	17.9%	0.0%
0.35		10	0.291	0.26	0.322	0.234	0.358	0.0136	0.043	14.8%	-20.4%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.9	0.775	1	0.5	1	0.0553	0.175	19.4%	0.0%
0.35		10	0.925	0.839	1	0.75	1	0.0382	0.121	13.1%	-2.78%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.9	0.775	1	0.5	1	0.0553	0.175	19.4%	0.0%
0.35		10	0.9	0.808	0.992	0.75	1	0.0408	0.129	14.3%	0.0%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	14.5	12.5	11	13.7	10.8	13	13.5	13	16.3	11.8
0.35		12.7	16	12.7	13.3	15.3	14.3	13.8	15.5	14.3	17

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.237	0.215	0.186	0.215	0.222	0.263	0.263	0.27	0.337	0.207
0.35		0.248	0.322	0.268	0.262	0.358	0.296	0.234	0.276	0.287	0.357

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.5	1	1	0.75	1	0.75	1	1	1	1
0.35		0.75	1	0.75	0.75	1	1	1	1	1	1

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.5	1	1	0.75	1	0.75	1	1	1	1
0.35		0.75	1	0.75	0.75	1	1	1	1	0.75	1

CETIS Summary Report

Report Date:

16 Feb-17 07:03 (p 1 of 1)

Test Code:

49637001 corn | 18-9483-4699

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)**Smithers Viscient**

Batch ID:	21-2524-3049	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergen	Diluent:	
Ending Date:	16 Feb-17 07:01	Species:	Zea mays	Brine:	
Duration:	864d 7h	Source:	Carolina Biological Supply Co	Age:	
Sample ID:	21-0011-6389	Code:	49637001 corn	Client:	CDM Smith - D. Worcester
Sample Date:	06 Oct-14	Material:	Pymetrozine	Project:	
Receive Date:	16 Feb-17 07:01	Source:	Syngenta		
Sample Age:	NA	Station:			

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
08-9174-6344	Mean Height	0.35	>0.35	NA	9.33%		Equal Variance t Two-Sample Test
15-9865-8244	Mean Weight	0.35	>0.35	NA	19.9%		Equal Variance t Two-Sample Test
16-6932-7168	Percent Emerged	0.35	>0.35	NA	12.6%		Wilcoxon Rank Sum Two-Sample Test
14-6233-5205	Percent Survived	0.35	>0.35	NA	12.6%		Wilcoxon Rank Sum Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	43	39.6	46.4	36.5	50.7	1.5	4.76	11.1%	0.0%
0.35		10	41.6	37.6	45.6	28	46.3	1.76	5.56	13.4%	3.3%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.278	0.225	0.33	0.189	0.4	0.0231	0.073	26.3%	0.0%
0.35		10	0.265	0.215	0.315	0.151	0.359	0.0221	0.0698	26.3%	4.46%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.925	0.839	1	0.75	1	0.0382	0.121	13.1%	0.0%
0.35		10	0.9	0.775	1	0.5	1	0.0553	0.175	19.4%	2.7%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.925	0.839	1	0.75	1	0.0382	0.121	13.1%	0.0%
0.35		10	0.9	0.775	1	0.5	1	0.0553	0.175	19.4%	2.7%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	43	36.5	46.5	47.3	40.3	50.7	43.8	37.3	38.5	46.3
0.35		42.3	28	45.7	37.8	44.8	46.3	41.7	39.3	44.8	45.3

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.276	0.189	0.316	0.338	0.212	0.4	0.272	0.232	0.189	0.353
0.35		0.308	0.151	0.359	0.189	0.354	0.319	0.213	0.243	0.264	0.254

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	1	1	0.75	1	0.75	1	0.75	0.75
0.35		1	0.5	0.75	1	1	1	0.75	1	1	1

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	1	1	0.75	1	0.75	1	0.75	0.75
0.35		1	0.5	0.75	1	1	1	0.75	1	1	1

CETIS Summary Report

Report Date: 16 Feb-17 08:22 (p 1 of 1)
Test Code: 49637001 cucumb | 04-8123-8038

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Batch ID: 14-4149-9421	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date: 16 Feb-17 07:05	Species: Cucumis sativus	Brine:
Duration: 864d 7h	Source: Burpee	Age:
Sample ID: 16-5345-3225	Code: 49637001 cucumb	Client: CDM Smith - D. Worcester
Sample Date: 06 Oct-14	Material: Pymetrozine	Project:
Receive Date: 16 Feb-17 07:05	Source: Syngenta	
Sample Age: NA	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
11-8597-9062	Mean Height	0.35	>0.35	NA	11.4%		Equal Variance t Two-Sample Test
09-8963-7712	Mean Weight	0.35	>0.35	NA	16.2%		Equal Variance t Two-Sample Test
09-7557-9660	Percent Emerged	0.35	>0.35	NA	24.0%		Wilcoxon Rank Sum Two-Sample Test
07-5658-0597	Percent Survived	0.35	>0.35	NA	27.0%		Wilcoxon Rank Sum Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	4.8	4.32	5.28	4	6	0.213	0.673	14.0%	0.0%
0.35		10	4.91	4.38	5.44	3.8	6.1	0.233	0.736	15.0%	-2.29%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.198	0.164	0.232	0.141	0.288	0.015	0.0474	24.0%	0.0%
0.35		10	0.206	0.182	0.23	0.15	0.248	0.0108	0.0341	16.6%	-4.22%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.8	0.615	0.985	0.25	1	0.0816	0.258	32.3%	0.0%
0.35		10	0.825	0.655	0.995	0.5	1	0.075	0.237	28.7%	-3.12%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.775	0.561	0.989	0.25	1	0.0946	0.299	38.6%	0.0%
0.35		10	0.825	0.655	0.995	0.5	1	0.075	0.237	28.7%	-6.45%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	4.5	4.8	4	4.8	5.1	6	4.2	4.9	4	5.7
0.35		4.5	4.9	5.2	4.5	6.1	6.1	4.3	4.9	3.8	4.8

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.141	0.149	0.233	0.188	0.177	0.224	0.148	0.191	0.237	0.288
0.35		0.248	0.175	0.234	0.15	0.208	0.229	0.219	0.162	0.239	0.195

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	0.25	1	1	0.5	0.75	1	0.75	0.75
0.35		0.5	1	0.75	1	1	1	0.5	1	0.5	1

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	0.25	1	1	0.25	0.75	1	0.75	0.75
0.35		0.5	1	0.75	1	1	1	0.5	1	0.5	1

CETIS Summary Report

Report Date:

16 Feb-17 07:12 (p 1 of 1)

Test Code:

49637001 oats | 06-2204-5342

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)**Smithers Viscient**

Batch ID: 20-5543-5021	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date: 16 Feb-17 07:10	Species: Avena sativa	Brine:
Duration: 864d 7h	Source: Granite Seed Company	Age:
Sample ID: 07-0431-6978	Code: 49637001 oats	Client: CDM Smith - D. Worcester
Sample Date: 06 Oct-14	Material: Pymetrozine	Project:
Receive Date: 16 Feb-17 07:10	Source: Syngenta	
Sample Age: NA	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
07-6645-3701	Mean Height	0.35	>0.35	NA	6.0%		Equal Variance t Two-Sample Test
00-7481-2066	Mean Weight	0.35	>0.35	NA	13.4%		Equal Variance t Two-Sample Test
09-0965-4169	Percent Emerged	0.35	>0.35	NA	14.1%		Equal Variance t Two-Sample Test
05-9219-6005	Percent Survived	0.35	>0.35	NA	14.1%		Equal Variance t Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	37.4	35.3	39.6	34.7	39.3	0.76	1.7	4.54%	0.0%
0.35		5	35.8	33.2	38.4	33.8	39.3	0.939	2.1	5.86%	4.27%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.0898	0.0848	0.0947	0.0861	0.0945	0.00179	0.004	4.45%	0.0%
0.35		5	0.0841	0.0668	0.101	0.0714	0.103	0.00623	0.0139	16.6%	6.35%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.9	0.77	1	0.75	1	0.0468	0.105	11.6%	0.0%
0.35		5	0.925	0.786	1	0.75	1	0.05	0.112	12.1%	-2.78%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.9	0.77	1	0.75	1	0.0468	0.105	11.6%	0.0%
0.35		5	0.925	0.786	1	0.75	1	0.05	0.112	12.1%	-2.78%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	39.3	37.8	37.3	34.7	38.1
0.35		35.1	33.8	34.9	36.1	39.3

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.0935	0.0861	0.0945	0.0862	0.0886
0.35		0.0714	0.0942	0.0735	0.0781	0.103

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	0.75	0.875	0.875	
0.35		0.875	0.75	1	1	1

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	0.75	0.875	0.875	
0.35		0.875	0.75	1	1	1

CETIS Summary Report

Report Date:

16 Feb-17 07:22 (p 1 of 1)

Test Code:

49637001 oilsee | 01-2211-6523

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)**Smithers Viscient**

Batch ID: 13-1350-2280	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date: 16 Feb-17 07:20	Species: Brassica napus	Brine:
Duration: 864d 7h	Source: Johnston Seed Company	Age:
Sample ID: 14-1417-3305	Code: 49637001 oilsee	Client: CDM Smith - D. Worcester
Sample Date: 06 Oct-14	Material: Pymetrozine	Project:
Receive Date: 16 Feb-17 07:20	Source: Syngenta	
Sample Age: NA	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
15-3315-3139	Mean Height	0.35	>0.35	NA	7.69%		Equal Variance t Two-Sample Test
18-3108-3172	Mean Weight	0.35	>0.35	NA	16.1%		Equal Variance t Two-Sample Test
04-5615-1386	Percent Emerged	0.35	>0.35	NA	7.61%		Wilcoxon Rank Sum Two-Sample Test
03-7451-2231	Percent Survived	0.35	>0.35	NA	7.61%		Wilcoxon Rank Sum Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	5.36	4.96	5.76	4.4	6.1	0.178	0.564	10.5%	0.0%
0.35		10	5.34	4.98	5.7	4.6	6.4	0.157	0.497	9.31%	0.37%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.0503	0.0423	0.0584	0.0368	0.0696	0.00355	0.0112	22.3%	0.0%
0.35		10	0.0518	0.0449	0.0587	0.0357	0.0664	0.00306	0.00968	18.7%	-2.84%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.95	0.875	1	0.75	1	0.0333	0.105	11.1%	0.0%
0.35		10	0.975	0.918	1	0.75	1	0.025	0.0791	8.11%	-2.63%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.95	0.875	1	0.75	1	0.0333	0.105	11.1%	0.0%
0.35		10	0.975	0.918	1	0.75	1	0.025	0.0791	8.11%	-2.63%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	5.8	5	4.4	5.6	5.1	5.5	6.1	4.6	5.6	5.9
0.35		5.4	5.6	5.4	4.8	4.6	5.3	6.4	5.3	5	5.6

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.0368	0.0412	0.0461	0.0545	0.0424	0.0696	0.0413	0.0503	0.0678	0.0535
0.35		0.0582	0.0357	0.0431	0.0511	0.0531	0.0608	0.0664	0.0452	0.0441	0.0601

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.75	0.75	1	1	1	1	1	1	1	1
0.35		1	1	1	1	1	0.75	1	1	1	1

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.75	0.75	1	1	1	1	1	1	1	1
0.35		1	1	1	1	1	0.75	1	1	1	1

CETIS Summary Report

Report Date:

16 Feb-17 07:15 (p 1 of 1)

Test Code:

49637001 onion | 06-4961-1601

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)**Smithers Viscient**

Batch ID: 09-0928-8660	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date: 16 Feb-17 07:13	Species: Allium cepa	Brine:
Duration: 864d 7h	Source: Park Seed Co.	Age:
Sample ID: 08-0175-3514	Code: 49637001 onion	Client: CDM Smith - D. Worcester
Sample Date: 06 Oct-14	Material: Pymetrozine	Project:
Receive Date: 16 Feb-17 07:13	Source: Syngenta	
Sample Age: NA	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
20-3737-0928	Mean Height	0.35	>0.35	NA	7.17%		Equal Variance t Two-Sample Test
03-3692-2533	Mean Weight	0.35	>0.35	NA	20.8%		Equal Variance t Two-Sample Test
08-7609-6938	Percent Emerged	0.35	>0.35	NA	17.8%		Equal Variance t Two-Sample Test
17-0193-2954	Percent Survived	0.35	>0.35	NA	17.8%		Equal Variance t Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	10.2	9.57	10.9	9.7	11	0.235	0.526	5.15%	0.0%
0.35		5	10	9.12	10.9	9.2	10.8	0.316	0.707	7.07%	2.15%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.00836	0.00653	0.0102	0.0062	0.0098	0.000661	0.00148	17.7%	0.0%
0.35		5	0.00902	0.00718	0.0109	0.0075	0.0113	0.000661	0.00148	16.4%	-7.89%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.925	0.786	1	0.75	1	0.05	0.112	12.1%	0.0%
0.35		5	0.85	0.648	1	0.625	1	0.0729	0.163	19.2%	8.11%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.925	0.786	1	0.75	1	0.05	0.112	12.1%	0.0%
0.35		5	0.85	0.648	1	0.625	1	0.0729	0.163	19.2%	8.11%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	11	9.9	10	10.5	9.7
0.35		9.2	10.8	10.6	10	9.4

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.0098	0.0092	0.0075	0.0091	0.0062
0.35		0.0084	0.0096	0.0113	0.0083	0.0075

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	0.875	1	1	0.75
0.35		0.75	1	0.625	1	0.875

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	0.875	1	1	0.75
0.35		0.75	1	0.625	1	0.875

CETIS Summary Report

Report Date: 16 Feb-17 07:26 (p 1 of 1)
Test Code: 49637001 radish | 01-5230-1964

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Batch ID: 06-1442-6294	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date: 16 Feb-17 07:23	Species: Raphanus sativus	Brine:
Duration: 864d 7h	Source: Park Seed Co.	Age:
Sample ID: 17-6792-6645	Code: 49637001 radish	Client: CDM Smith - D. Worcester
Sample Date: 06 Oct-14	Material: Pymetrozine	Project:
Receive Date: 16 Feb-17 07:23	Source: Syngenta	
Sample Age: NA	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
01-9792-2649	Mean Height	0.35	>0.35	NA	8.45%		Equal Variance t Two-Sample Test
18-2691-8429	Mean Weight	0.35	>0.35	NA	12.2%		Equal Variance t Two-Sample Test
03-6297-9127	Percent Emerged	0.35	>0.35	NA	NA		Equal Variance t Two-Sample Test
07-8450-2885	Percent Survived	0.35	>0.35	NA	NA		Equal Variance t Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	2.81	2.55	3.07	2.3	3.6	0.115	0.363	12.9%	0.0%
0.35		10	2.8	2.63	2.97	2.3	3.1	0.0745	0.236	8.42%	0.36%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.0897	0.082	0.0974	0.0685	0.103	0.00342	0.0108	12.0%	0.0%
0.35		10	0.0871	0.075	0.0992	0.0586	0.116	0.00533	0.0169	19.4%	2.9%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	1	1	1	1	1	0	0	0.0%	0.0%
0.35		10	1	1	1	1	1	0	0	0.0%	0.0%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	1	1	1	1	1	0	0	0.0%	0.0%
0.35		10	1	1	1	1	1	0	0	0.0%	0.0%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	2.9	3.6	2.9	2.9	3	2.6	2.5	2.3	2.5	2.9
0.35		2.9	2.9	3	2.5	2.3	2.8	3.1	2.8	2.8	2.9

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.0685	0.103	0.0732	0.0948	0.0902	0.099	0.0961	0.0916	0.0911	0.0897
0.35		0.0976	0.116	0.0966	0.0891	0.0586	0.0974	0.0696	0.0726	0.0805	0.0927

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	1	1	1	1	1	1	1	1
0.35		1	1	1	1	1	1	1	1	1	1

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	1	1	1	1	1	1	1	1
0.35		1	1	1	1	1	1	1	1	1	1

CETIS Summary Report

Report Date:

16 Feb-17 07:19 (p 1 of 1)

Test Code:

49637001 ryegra | 02-3908-4890

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)**Smithers Viscient**

Batch ID: 17-8501-1296	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date: 16 Feb-17 07:16	Species: Lolium perenne	Brine:
Duration: 864d 7h	Source: Granite Seed Company	Age:
Sample ID: 10-5859-4638	Code: 49637001 ryegra	Client: CDM Smith - D. Worcester
Sample Date: 06 Oct-14	Material: Pymetrozine	Project:
Receive Date: 16 Feb-17 07:16	Source: Syngenta	
Sample Age: NA	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
09-6983-1059	Mean Height	0.35	>0.35	NA	8.74%		Equal Variance t Two-Sample Test
04-7555-0761	Mean Weight	0.35	>0.35	NA	35.7%		Equal Variance t Two-Sample Test
18-7894-7193	Percent Emerged	0.35	>0.35	NA	16.9%		Equal Variance t Two-Sample Test
20-5631-5060	Percent Survived	0.35	>0.35	NA	16.9%		Equal Variance t Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	19.1	17.3	20.9	17.4	20.7	0.658	1.47	7.7%	0.0%
0.35		5	19.1	17.4	20.8	16.7	20	0.612	1.37	7.17%	0.11%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.0182	0.00908	0.0273	0.0092	0.0279	0.00328	0.00734	40.4%	0.0%
0.35		5	0.0161	0.0128	0.0194	0.0126	0.0195	0.00118	0.00263	16.3%	11.4%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.825	0.648	1	0.625	1	0.0637	0.143	17.3%	0.0%
0.35		5	0.875	0.765	0.985	0.75	1	0.0395	0.0884	10.1%	-6.06%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.825	0.648	1	0.625	1	0.0637	0.143	17.3%	0.0%
0.35		5	0.875	0.765	0.985	0.75	1	0.0395	0.0884	10.1%	-6.06%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	17.4	20.7	20.3	17.8	19.4
0.35		19.3	16.7	19.6	19.9	20

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.0215	0.0195	0.0092	0.0279	0.0129
0.35		0.0147	0.0126	0.0175	0.0163	0.0195

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.625	0.875	1	0.75	0.875
0.35		0.875	0.75	1	0.875	0.875

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.625	0.875	1	0.75	0.875
0.35		0.875	0.75	1	0.875	0.875

CETIS Summary Report

Report Date: 16 Feb-17 07:29 (p 1 of 1)
Test Code: 49637001 soybea | 07-2862-9401

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)**Smithers Viscient**

Batch ID: 18-4157-0799	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date: 16 Feb-17 07:27	Species: Glycine max	Brine:
Duration: 864d 7h	Source: Johnny's Selected Seeds, ME	Age:
Sample ID: 09-4789-3277	Code: 49637001 soybea	Client: CDM Smith - D. Worcester
Sample Date: 06 Oct-14	Material: Pymetrozine	Project:
Receive Date: 16 Feb-17 07:27	Source: Syngenta	
Sample Age: NA	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
11-7422-6686	Mean Height	<0.35	0.35	NA	8.92%		Equal Variance t Two-Sample Test
21-2687-8909	Mean Weight	0.35	>0.35	NA	12.6%		Equal Variance t Two-Sample Test
10-7379-5682	Percent Emerged	0.35	>0.35	NA	21.8%		Wilcoxon Rank Sum Two-Sample Test
06-7446-2151	Percent Survived	0.35	>0.35	NA	21.8%		Wilcoxon Rank Sum Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	20.5	18.9	22	15.3	23	0.696	2.2	10.8%	0.0%
0.35		10	17.8	16	19.6	14.5	21.3	0.79	2.5	14.0%	13.1%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.337	0.289	0.386	0.213	0.437	0.0214	0.0677	20.1%	0.0%
0.35		10	0.32	0.293	0.347	0.278	0.376	0.0119	0.0377	11.8%	5.13%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.7	0.515	0.885	0.25	1	0.0816	0.258	36.9%	0.0%
0.35		10	0.95	0.875	1	0.75	1	0.0333	0.105	11.1%	-35.7%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.7	0.515	0.885	0.25	1	0.0816	0.258	36.9%	0.0%
0.35		10	0.95	0.875	1	0.75	1	0.0333	0.105	11.1%	-35.7%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	21	21.8	23	19.5	19	21.5	21.3	15.3	22.3	20
0.35		10	16.8	14.5	15.3	14.8	20	17	21.3	19.3	20.8

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.36	0.319	0.437	0.324	0.401	0.396	0.271	0.213	0.289	0.362
0.35		10	0.305	0.278	0.352	0.279	0.332	0.281	0.315	0.305	0.376

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.5	1	0.75	0.5	0.25	0.5	1	1	0.75	0.75
0.35		10	1	1	1	0.75	1	1	0.75	1	1

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.5	1	0.75	0.5	0.25	0.5	1	1	0.75	0.75
0.35		10	1	1	1	0.75	1	1	0.75	1	1

CETIS Summary Report

Report Date: 16 Feb-17 07:33 (p 1 of 1)
Test Code: 49637001 tomato | 13-8250-6445

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Batch ID: 06-0162-3872	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date: 16 Feb-17 07:30	Species: Lycopersicon esculentum	Brine:
Duration: 864d 8h	Source: Tomato Growers Supply Company	Age:
Sample ID: 03-5333-3661	Code: 49637001 tomato	Client: CDM Smith - D. Worcester
Sample Date: 06 Oct-14	Material: Pymetrozine	Project:
Receive Date: 16 Feb-17 07:30	Source: Syngenta	
Sample Age: NA	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
08-3584-5222	Mean Height	0.35	>0.35	NA	14.3%		Equal Variance t Two-Sample Test
12-4013-2737	Mean Weight	0.35	>0.35	NA	35.0%		Equal Variance t Two-Sample Test
18-1558-0681	Percent Emerged	0.35	>0.35	NA	8.51%		Wilcoxon Rank Sum Two-Sample Test
16-5087-2509	Percent Survived	0.35	>0.35	NA	8.51%		Wilcoxon Rank Sum Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	7.15	6.13	8.17	5	9.5	0.449	1.42	19.8%	0.0%
0.35		10	6.73	5.86	7.6	4.8	8.7	0.384	1.21	18.0%	5.87%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.047	0.0318	0.0622	0.0239	0.0892	0.00671	0.0212	45.1%	0.0%
0.35		10	0.0572	0.042	0.0723	0.0264	0.0925	0.00671	0.0212	37.1%	-21.6%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.975	0.918	1	0.75	1	0.025	0.0791	8.11%	0.0%
0.35		10	0.9	0.808	0.992	0.75	1	0.0408	0.129	14.3%	7.69%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.975	0.918	1	0.75	1	0.025	0.0791	8.11%	0.0%
0.35		10	0.9	0.808	0.992	0.75	1	0.0408	0.129	14.3%	7.69%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	6.5	6.3	7.3	7.3	7	9.5	5.5	5	8.8	8.3
0.35		7	5.3	7.3	4.8	7.8	8.7	6	7.3	7.3	5.8

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.032	0.0319	0.0413	0.0519	0.0388	0.0892	0.0239	0.0275	0.0658	0.0676
0.35		0.0552	0.0345	0.0731	0.0264	0.0725	0.0925	0.042	0.075	0.0601	0.0402

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	1	0.75	1	1	1	1	1	1
0.35		1	0.75	0.75	1	1	0.75	1	1	0.75	1

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	1	0.75	1	1	1	1	1	1
0.35		1	0.75	0.75	1	1	0.75	1	1	0.75	1

CETIS Analytical Report

Report Date: 16 Feb-17 06:59 (p 1 of 4)
 Test Code: 49637001 bean | 07-6935-6205

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	02-4775-8410	Endpoint:	Mean Height	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 6:58	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	01-8716-3172	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:		Species:	Phaseolus vulgaris	Brine:	
Duration:	NA	Source:	Park Seed Co.	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	9.22%	Passes mean height

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	-2.14	1.73	1.2	18	0.9769	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	10.952	10.952	1	4.58	0.0463	Significant Effect
Error	43.038	2.391	18			
Total	53.99		19			

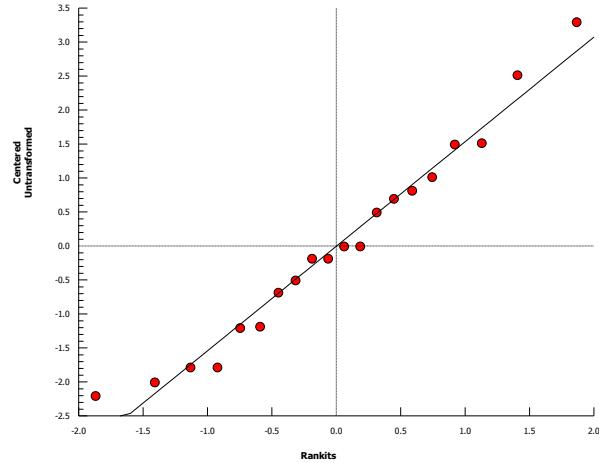
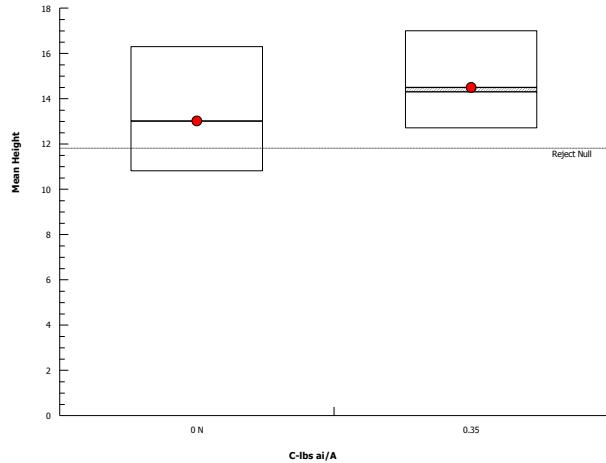
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.31	6.54	0.6938	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.966	0.866	0.6684	Normal Distribution

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	13	11.8	14.2	13	10.8	16.3	0.521	12.7%	0.0%
0.35		10	14.5	13.5	15.5	14.3	12.7	17	0.455	9.93%	-11.4%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 06:59 (p 2 of 4)
 Test Code: 49637001 bean | 07-6935-6205

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	00-1097-2377	Endpoint:	Mean Weight	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 6:58	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	01-8716-3172	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:		Species:	Phaseolus vulgaris	Brine:	
Duration:	NA	Source:	Park Seed Co.	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	13.9%	Passes mean weight

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	-2.56	1.73	0.034	18	0.9901	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.01217711	0.01217711	1	6.54	0.0198	Significant Effect
Error	0.03352471	0.001862484	18			
Total	0.04570183		19			

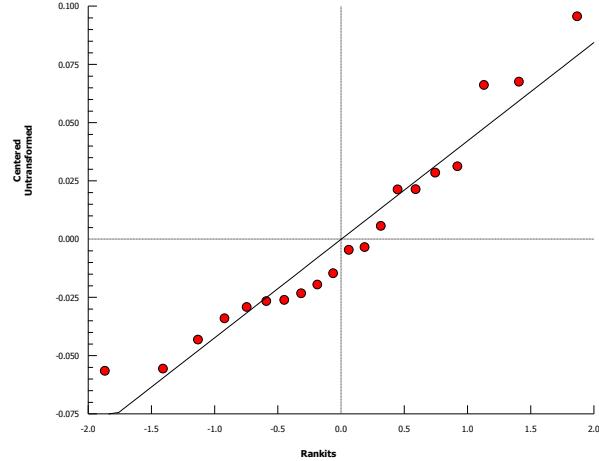
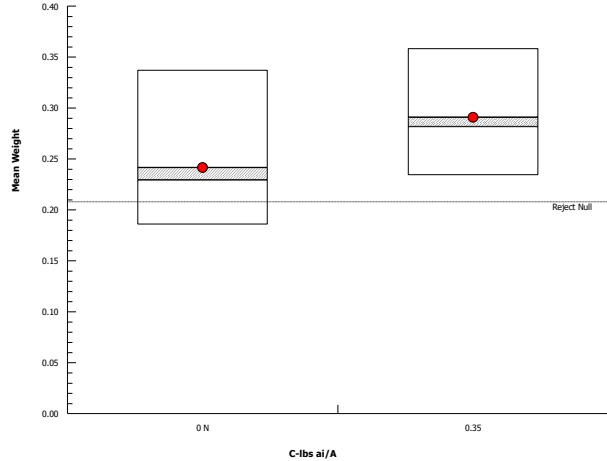
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.02	6.54	0.9808	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.935	0.866	0.1890	Normal Distribution

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	0.241	0.21	0.272	0.229	0.186	0.337	0.0137	17.9%	0.0%
0.35		10	0.291	0.26	0.322	0.282	0.234	0.358	0.0136	14.8%	-20.4%

Graphics



OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence) Smithers Viscient

Analysis ID: 16-5726-2148	Endpoint: Percent Emerged	CETIS Version: CETISv1.8.7
Analyzed: 16 Feb-17 6:58	Analysis: Nonparametric-Two Sample	Official Results: Yes
Batch ID: 01-8716-3172	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date:	Species: Phaseolus vulgaris	Brine:
Duration: NA	Source: Park Seed Co.	Age:

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	12.9%	Passes percent emerged

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	107	NA	2	18	0.6858	Exact	Non-Significant Effect

ANOVA Table

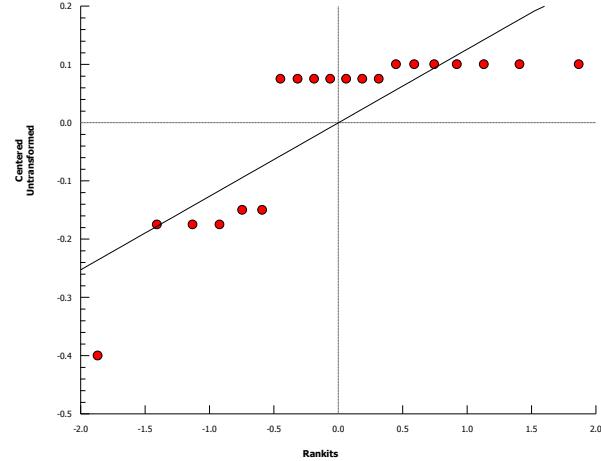
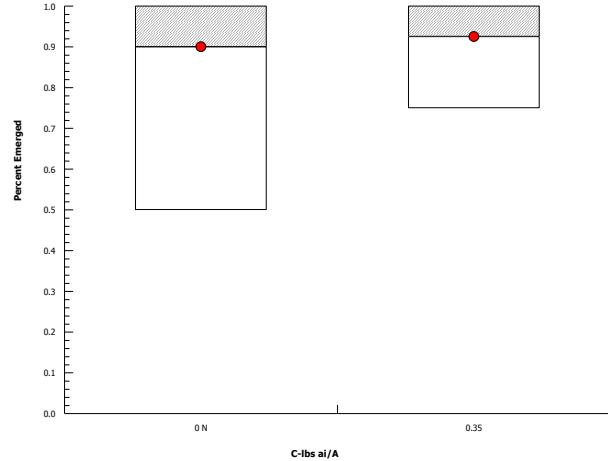
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.003125	0.003125	1	0.138	0.7142	Non-Significant Effect
Error	0.40625	0.02256944	18			
Total	0.409375		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	2.1	6.54	0.2857	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.694	0.866	<0.0001	Non-normal Distribution

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	0.9	0.775	1	1	0.5	1	0.0553	19.4%	0.0%
0.35		10	0.925	0.839	1	1	0.75	1	0.0382	13.1%	-2.78%

Graphics

CETIS Analytical Report

Report Date: 16 Feb-17 06:59 (p 4 of 4)
 Test Code: 49637001 bean | 07-6935-6205

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	12-4482-5014	Endpoint:	Percent Survived	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 6:58	Analysis:	Nonparametric-Two Sample	Official Results:	Yes
Batch ID:	01-8716-3172	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:		Species:	Phaseolus vulgaris	Brine:	
Duration:	NA	Source:	Park Seed Co.	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	13.2%	Passes percent survived

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	102	NA	2	18	0.5000	Exact	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0	0	1	0	1.0000	Non-Significant Effect
Error	0.425	0.02361111	18			
Total	0.425		19			

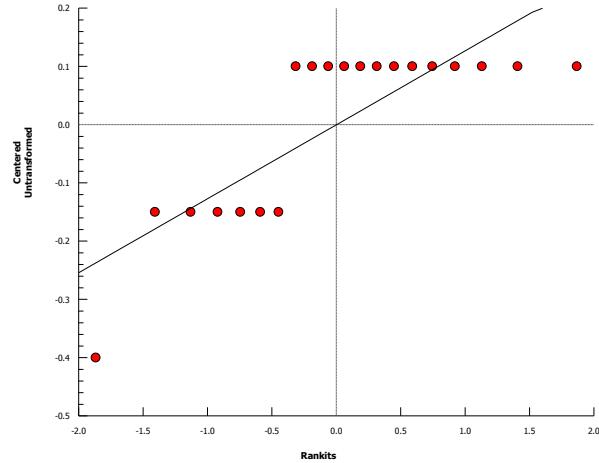
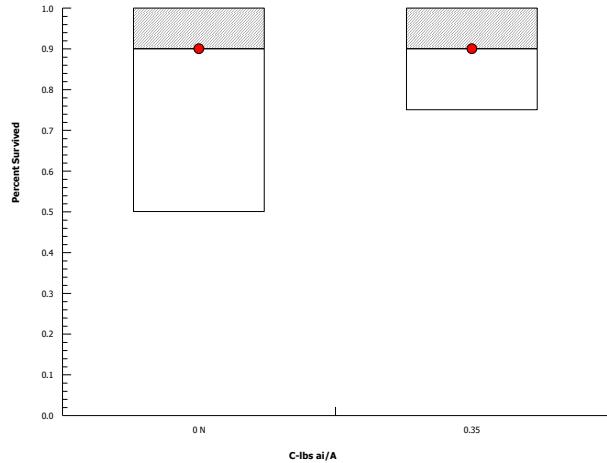
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.83	6.54	0.3800	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.671	0.866	<0.0001	Non-normal Distribution

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	0.9	0.775	1	1	0.5	1	0.0553	19.4%	0.0%
0.35		10	0.9	0.808	0.992	1	0.75	1	0.0408	14.3%	0.0%

Graphics



CETIS Summary Report

Report Date:

16 Feb-17 07:00 (p 1 of 1)

Test Code:

49637001 bean | 07-6935-6205

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)**Smithers Viscient**

Batch ID: 01-8716-3172	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date:	Species: Phaseolus vulgaris	Brine:
Duration: NA	Source: Park Seed Co.	Age:
Sample ID: 04-2114-0851	Code: 49637001 bean	Client: CDM Smith - D. Worcester
Sample Date: 06 Oct-14	Material: Pymetrozine	Project:
Receive Date:	Source: Syngenta	
Sample Age: NA	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
02-4775-8410	Mean Height	0.35	>0.35	NA	9.22%		Equal Variance t Two-Sample Test
00-1097-2377	Mean Weight	0.35	>0.35	NA	13.9%		Equal Variance t Two-Sample Test
16-5726-2148	Percent Emerged	0.35	>0.35	NA	12.9%		Wilcoxon Rank Sum Two-Sample Test
12-4482-5014	Percent Survived	0.35	>0.35	NA	13.2%		Wilcoxon Rank Sum Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	13	11.8	14.2	10.8	16.3	0.521	1.65	12.7%	0.0%
0.35		10	14.5	13.5	15.5	12.7	17	0.455	1.44	9.93%	-11.4%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.241	0.21	0.272	0.186	0.337	0.0137	0.0433	17.9%	0.0%
0.35		10	0.291	0.26	0.322	0.234	0.358	0.0136	0.043	14.8%	-20.4%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.9	0.775	1	0.5	1	0.0553	0.175	19.4%	0.0%
0.35		10	0.925	0.839	1	0.75	1	0.0382	0.121	13.1%	-2.78%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.9	0.775	1	0.5	1	0.0553	0.175	19.4%	0.0%
0.35		10	0.9	0.808	0.992	0.75	1	0.0408	0.129	14.3%	0.0%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	14.5	12.5	11	13.7	10.8	13	13.5	13	16.3	11.8
0.35		12.7	16	12.7	13.3	15.3	14.3	13.8	15.5	14.3	17

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.237	0.215	0.186	0.215	0.222	0.263	0.263	0.27	0.337	0.207
0.35		0.248	0.322	0.268	0.262	0.358	0.296	0.234	0.276	0.287	0.357

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.5	1	1	0.75	1	0.75	1	1	1	1
0.35		0.75	1	0.75	0.75	1	1	1	1	1	1

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.5	1	1	0.75	1	0.75	1	1	1	1
0.35		0.75	1	0.75	0.75	1	1	1	1	0.75	1

CETIS Analytical Report

Report Date: 16 Feb-17 07:03 (p 1 of 4)
 Test Code: 49637001 corn | 18-9483-4699

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	08-9174-6344	Endpoint:	Mean Height	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:02	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	21-2524-3049	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:	16 Feb-17 07:01	Species:	Zea mays	Brine:	
Duration:	864d 7h	Source:	Carolina Biological Supply Co	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	9.33%	Passes mean height

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	0.614	1.73	4.01	18	0.2736	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	10.082	10.082	1	0.376	0.5472	Non-Significant Effect
Error	482.096	26.78311	18			
Total	492.178		19			

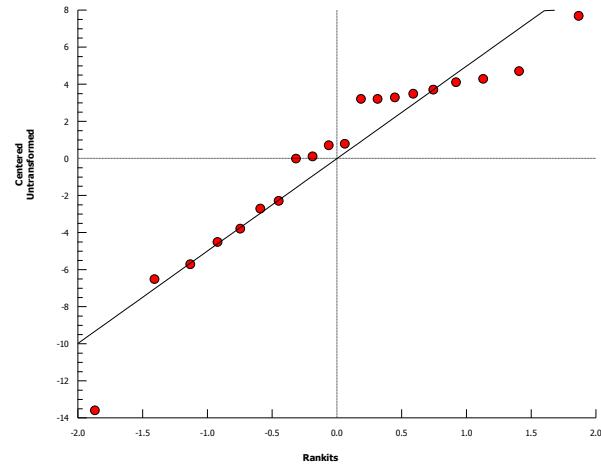
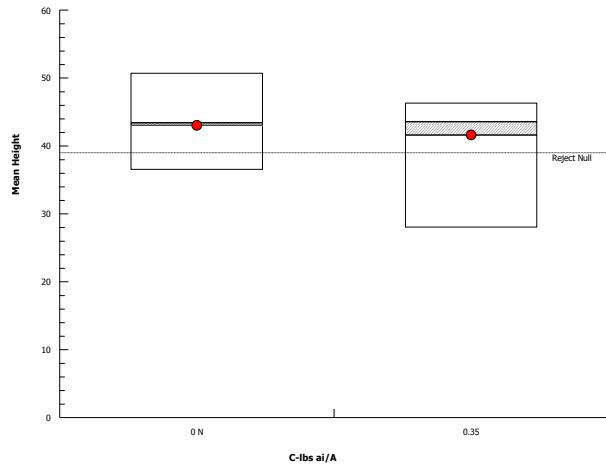
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.37	6.54	0.6504	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.92	0.866	0.0977	Normal Distribution

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	43	39.6	46.4	43.4	36.5	50.7	1.5	11.1%	0.0%
0.35		10	41.6	37.6	45.6	43.5	28	46.3	1.76	13.4%	3.3%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:03 (p 2 of 4)
 Test Code: 49637001 corn | 18-9483-4699

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	15-9865-8244	Endpoint:	Mean Weight	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:02	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	21-2524-3049	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:	16 Feb-17 07:01	Species:	Zea mays	Brine:	
Duration:	864d 7h	Source:	Carolina Biological Supply Co	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	19.9%	Passes mean weight

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	0.387	1.73	0.055	18	0.3515	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.0007650845	0.0007650845	1	0.15	0.7030	Non-Significant Effect
Error	0.09174377	0.005096876	18			
Total	0.09250885		19			

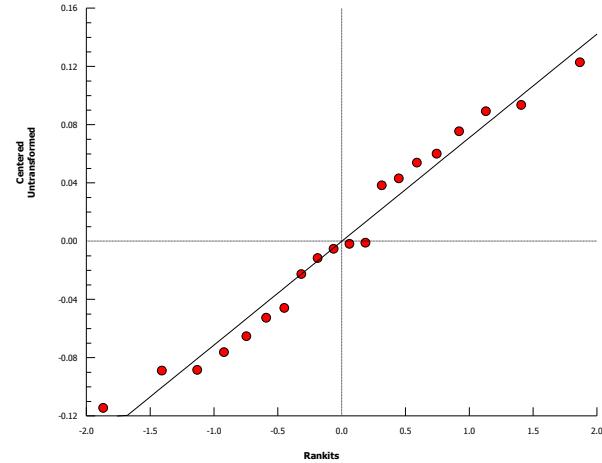
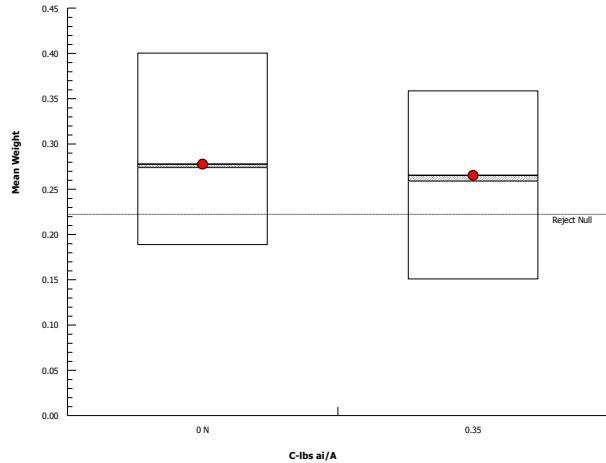
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.1	6.54	0.8947	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.963	0.866	0.6038	Normal Distribution

Mean Weight Summary

C-lbs ai/A	Control	Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10		0.278	0.225	0.33	0.274	0.189	0.4	0.0231	26.3%	0.0%
0.35			10	0.265	0.215	0.315	0.259	0.151	0.359	0.0221	26.3%	4.46%

Graphics



OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	16-6932-7168	Endpoint:	Percent Emerged	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:02	Analysis:	Nonparametric-Two Sample	Official Results:	Yes
Batch ID:	21-2524-3049	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergen	Diluent:	
Ending Date:	16 Feb-17 07:01	Species:	Zea mays	Brine:	
Duration:	864d 7h	Source:	Carolina Biological Supply Co	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	12.6%	Passes percent emerged

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	104	NA	2	18	0.5000	Exact	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.003125	0.003125	1	0.138	0.7142	Non-Significant Effect
Error	0.40625	0.02256944	18			
Total	0.409375		19			

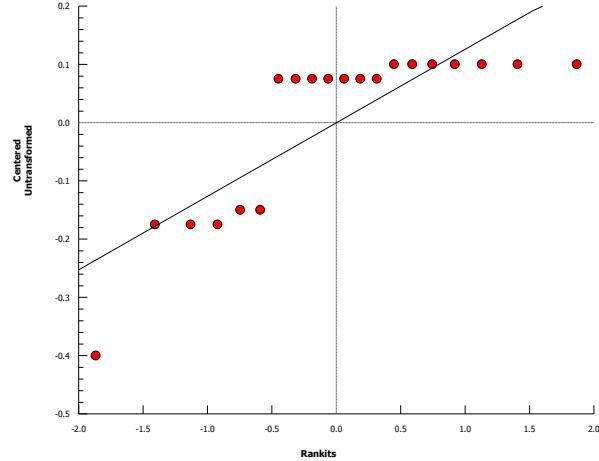
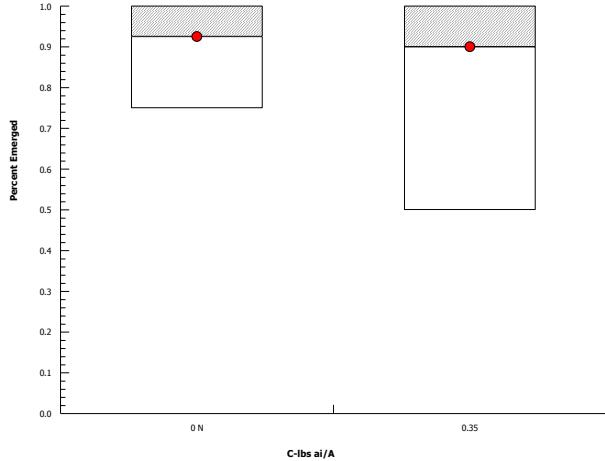
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	2.1	6.54	0.2857	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.694	0.866	<0.0001	Non-normal Distribution

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	0.925	0.839	1	1	0.75	1	0.0382	13.1%	0.0%
0.35		10	0.9	0.775	1	1	0.5	1	0.0553	19.4%	2.7%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:03 (p 4 of 4)
 Test Code: 49637001 corn | 18-9483-4699

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	14-6233-5205	Endpoint:	Percent Survived	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:02	Analysis:	Nonparametric-Two Sample	Official Results:	Yes
Batch ID:	21-2524-3049	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:	16 Feb-17 07:01	Species:	Zea mays	Brine:	
Duration:	864d 7h	Source:	Carolina Biological Supply Co	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	12.6%	Passes percent survived

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	104	NA	2	18	0.5000	Exact	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.003125	0.003125	1	0.138	0.7142	Non-Significant Effect
Error	0.40625	0.02256944	18			
Total	0.409375		19			

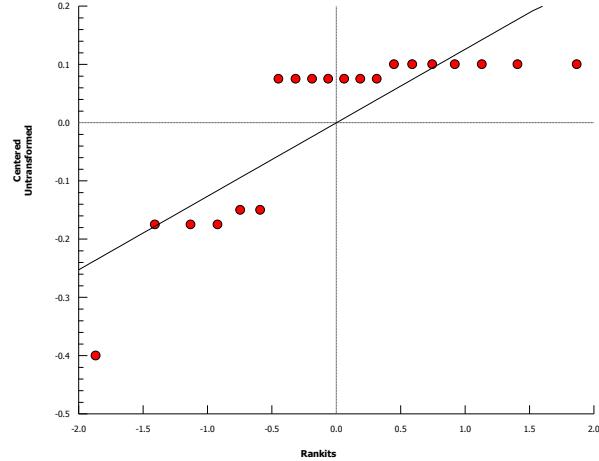
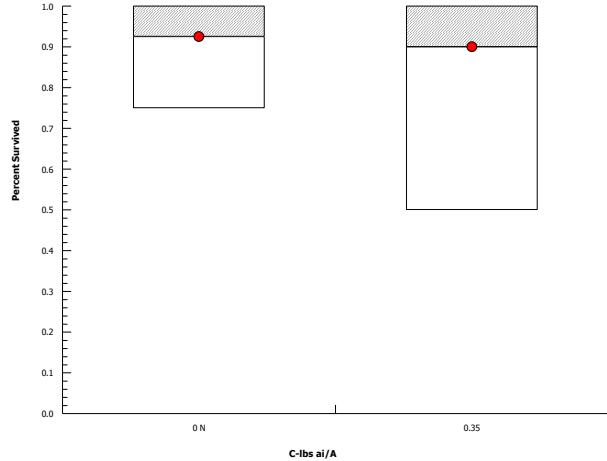
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	2.1	6.54	0.2857	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.694	0.866	<0.0001	Non-normal Distribution

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	0.925	0.839	1	1	0.75	1	0.0382	13.1%	0.0%
0.35		10	0.9	0.775	1	1	0.5	1	0.0553	19.4%	2.7%

Graphics



CETIS Summary Report

Report Date:

16 Feb-17 07:03 (p 1 of 1)

Test Code:

49637001 corn | 18-9483-4699

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)**Smithers Viscient**

Batch ID:	21-2524-3049	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergen	Diluent:	
Ending Date:	16 Feb-17 07:01	Species:	Zea mays	Brine:	
Duration:	864d 7h	Source:	Carolina Biological Supply Co	Age:	
Sample ID:	21-0011-6389	Code:	49637001 corn	Client:	CDM Smith - D. Worcester
Sample Date:	06 Oct-14	Material:	Pymetrozine	Project:	
Receive Date:	16 Feb-17 07:01	Source:	Syngenta		
Sample Age:	NA	Station:			

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
08-9174-6344	Mean Height	0.35	>0.35	NA	9.33%		Equal Variance t Two-Sample Test
15-9865-8244	Mean Weight	0.35	>0.35	NA	19.9%		Equal Variance t Two-Sample Test
16-6932-7168	Percent Emerged	0.35	>0.35	NA	12.6%		Wilcoxon Rank Sum Two-Sample Test
14-6233-5205	Percent Survived	0.35	>0.35	NA	12.6%		Wilcoxon Rank Sum Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	43	39.6	46.4	36.5	50.7	1.5	4.76	11.1%	0.0%
0.35		10	41.6	37.6	45.6	28	46.3	1.76	5.56	13.4%	3.3%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.278	0.225	0.33	0.189	0.4	0.0231	0.073	26.3%	0.0%
0.35		10	0.265	0.215	0.315	0.151	0.359	0.0221	0.0698	26.3%	4.46%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.925	0.839	1	0.75	1	0.0382	0.121	13.1%	0.0%
0.35		10	0.9	0.775	1	0.5	1	0.0553	0.175	19.4%	2.7%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.925	0.839	1	0.75	1	0.0382	0.121	13.1%	0.0%
0.35		10	0.9	0.775	1	0.5	1	0.0553	0.175	19.4%	2.7%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	43	36.5	46.5	47.3	40.3	50.7	43.8	37.3	38.5	46.3
0.35		42.3	28	45.7	37.8	44.8	46.3	41.7	39.3	44.8	45.3

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.276	0.189	0.316	0.338	0.212	0.4	0.272	0.232	0.189	0.353
0.35		0.308	0.151	0.359	0.189	0.354	0.319	0.213	0.243	0.264	0.254

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	1	1	0.75	1	0.75	1	0.75	0.75
0.35		1	0.5	0.75	1	1	1	0.75	1	1	1

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	1	1	0.75	1	0.75	1	0.75	0.75
0.35		1	0.5	0.75	1	1	1	0.75	1	1	1

CETIS Analytical Report

Report Date: 16 Feb-17 08:22 (p 1 of 4)
 Test Code: 49637001 cucumb | 04-8123-8038

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID: 11-8597-9062 **Endpoint:** Mean Height
Analyzed: 16 Feb-17 7:07 **Analysis:** Parametric-Two Sample **CETIS Version:** CETISv1.8.7
Official Results: Yes

Batch ID: 14-4149-9421 **Test Type:** Seedling Emergence Tier II
Start Date: 06 Oct-14 **Protocol:** OCSPP 850.4100 Plant Seedling Emergence
Ending Date: 16 Feb-17 07:05 **Species:** Cucumis sativus
Duration: 864d 7h **Source:** Burpee **Analyst:**
Diluent:
Brine:
Age:

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	11.4%	Passes mean height

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	-0.349	1.73	0.547	18	0.6344	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.0605	0.0605	1	0.122	0.7313	Non-Significant Effect
Error	8.949	0.4971667	18			
Total	9.009501		19			

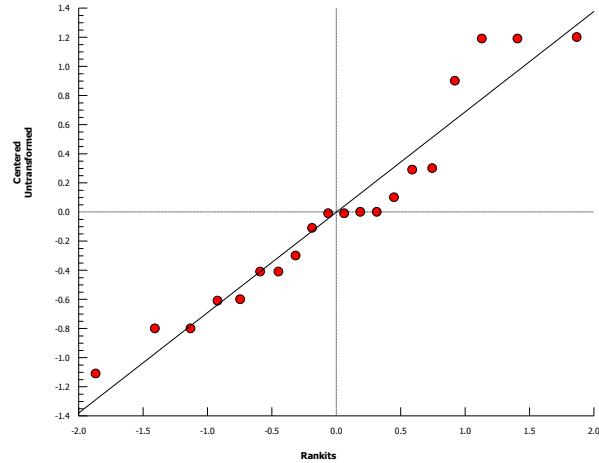
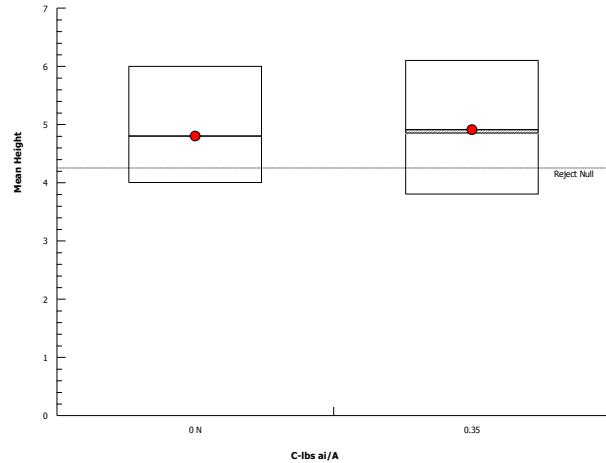
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.19	6.54	0.7966	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.927	0.866	0.1348	Normal Distribution

Mean Height Summary

C-lbs ai/A	Control	Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control		10	4.8	4.32	5.28	4.8	4	6	0.213	14.0%	0.0%
0.35			10	4.91	4.38	5.44	4.85	3.8	6.1	0.233	15.0%	-2.29%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 08:22 (p 2 of 4)
 Test Code: 49637001 cucumb | 04-8123-8038

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID: 09-8963-7712 **Endpoint:** Mean Weight
Analyzed: 16 Feb-17 7:07 **Analysis:** Parametric-Two Sample **CETIS Version:** CETISv1.8.7
Official Results: Yes

Batch ID: 14-4149-9421 **Test Type:** Seedling Emergence Tier II
Start Date: 06 Oct-14 **Protocol:** OCSPP 850.4100 Plant Seedling Emergence
Ending Date: 16 Feb-17 07:05 **Species:** Cucumis sativus
Duration: 864d 7h **Source:** Burpee **Analyst:**
Diluent:
Brine:
Age:

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	16.2%	Passes mean weight

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	-0.451	1.73	0.032	18	0.6715	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.000347778	0.000347778	1	0.204	0.6570	Non-Significant Effect
Error	0.03071346	0.001706304	18			
Total	0.03106124		19			

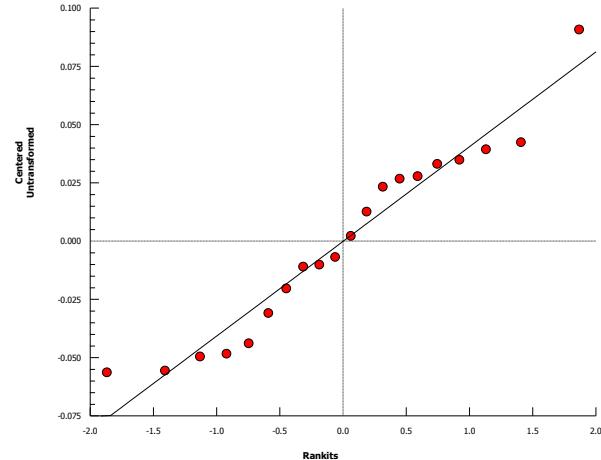
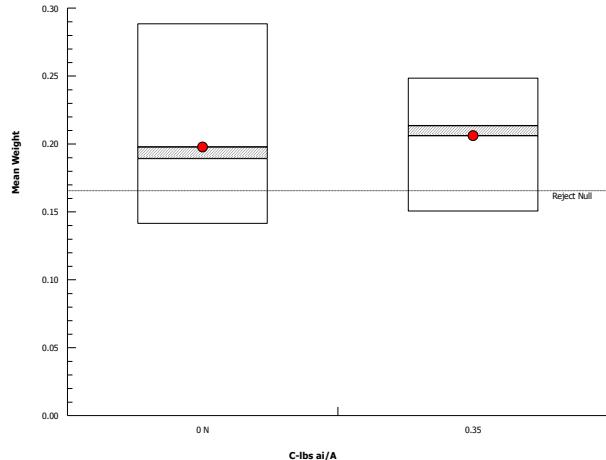
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.93	6.54	0.3399	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.945	0.866	0.2973	Normal Distribution

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	0.198	0.164	0.232	0.189	0.141	0.288	0.015	24.0%	0.0%
0.35		10	0.206	0.182	0.23	0.213	0.15	0.248	0.0108	16.6%	-4.22%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 08:22 (p 3 of 4)
 Test Code: 49637001 cucumb | 04-8123-8038

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID: 09-7557-9660 **Endpoint:** Percent Emerged
Analyzed: 16 Feb-17 7:07 **Analysis:** Nonparametric-Two Sample

CETIS Version: CETISv1.8.7
Official Results: Yes

Batch ID: 14-4149-9421 **Test Type:** Seedling Emergence Tier II
Start Date: 06 Oct-14 **Protocol:** OCSPP 850.4100 Plant Seedling Emergence
Ending Date: 16 Feb-17 07:05 **Species:** Cucumis sativus
Duration: 864d 7h **Source:** Burpee

Analyst:
Diluent:
Brine:
Age:

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	24.0%	Passes percent emerged

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	108	NA	3	18	0.6025	Exact	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.003125	0.003125	1	0.0508	0.8241	Non-Significant Effect
Error	1.10625	0.06145833	18			
Total	1.109375		19			

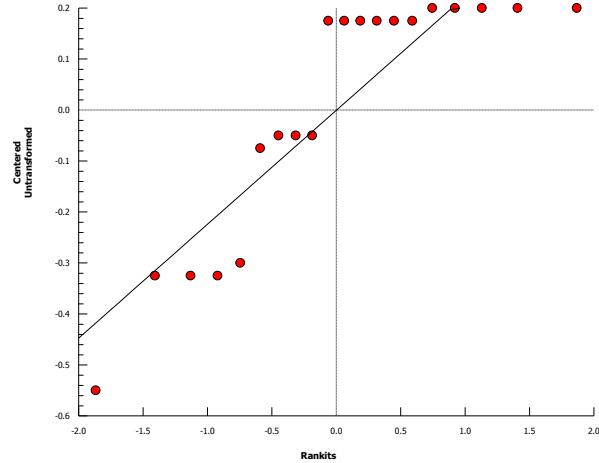
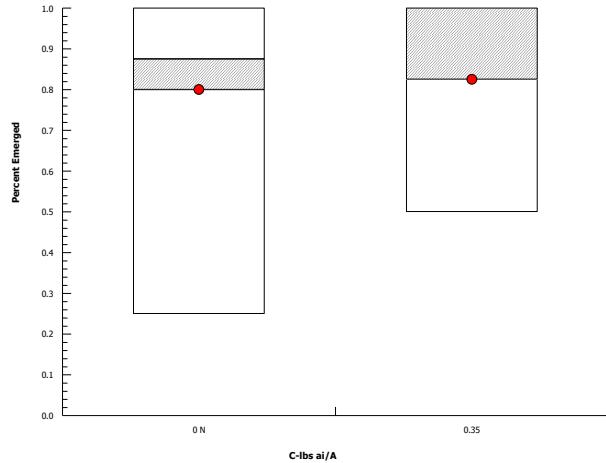
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.19	6.54	0.8043	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.788	0.866	0.0006	Non-normal Distribution

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	0.8	0.615	0.985	0.875	0.25	1	0.0816	32.3%	0.0%
0.35		10	0.825	0.655	0.995	1	0.5	1	0.075	28.7%	-3.12%

Graphics



OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence) Smithers Viscient

Analysis ID: 07-5658-0597	Endpoint: Percent Survived	CETIS Version: CETISv1.8.7
Analyzed: 16 Feb-17 7:07	Analysis: Nonparametric-Two Sample	Official Results: Yes

Batch ID: 14-4149-9421	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date: 16 Feb-17 07:05	Species: Cucumis sativus	Brine:
Duration: 864d 7h	Source: Burpee	Age:

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	27.0%	Passes percent survived

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	110	NA	2	18	0.6275	Exact	Non-Significant Effect

ANOVA Table

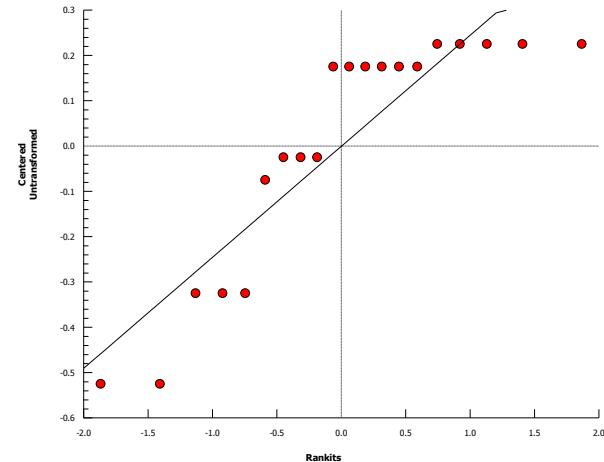
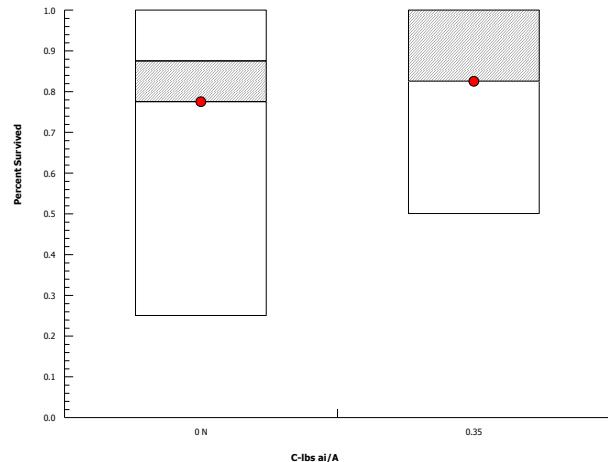
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.0125	0.0125	1	0.171	0.6837	Non-Significant Effect
Error	1.3125	0.07291666	18			
Total	1.325		19			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.59	6.54	0.4990	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.794	0.866	0.0007	Non-normal Distribution

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	0.775	0.561	0.989	0.875	0.25	1	0.0946	38.6%	0.0%
0.35		10	0.825	0.655	0.995	1	0.5	1	0.075	28.7%	-6.45%

Graphics

CETIS Summary Report

Report Date: 16 Feb-17 08:22 (p 1 of 1)
Test Code: 49637001 cucumb | 04-8123-8038

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Batch ID: 14-4149-9421	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date: 16 Feb-17 07:05	Species: Cucumis sativus	Brine:
Duration: 864d 7h	Source: Burpee	Age:
Sample ID: 16-5345-3225	Code: 49637001 cucumb	Client: CDM Smith - D. Worcester
Sample Date: 06 Oct-14	Material: Pymetrozine	Project:
Receive Date: 16 Feb-17 07:05	Source: Syngenta	
Sample Age: NA	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
11-8597-9062	Mean Height	0.35	>0.35	NA	11.4%		Equal Variance t Two-Sample Test
09-8963-7712	Mean Weight	0.35	>0.35	NA	16.2%		Equal Variance t Two-Sample Test
09-7557-9660	Percent Emerged	0.35	>0.35	NA	24.0%		Wilcoxon Rank Sum Two-Sample Test
07-5658-0597	Percent Survived	0.35	>0.35	NA	27.0%		Wilcoxon Rank Sum Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	4.8	4.32	5.28	4	6	0.213	0.673	14.0%	0.0%
0.35		10	4.91	4.38	5.44	3.8	6.1	0.233	0.736	15.0%	-2.29%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.198	0.164	0.232	0.141	0.288	0.015	0.0474	24.0%	0.0%
0.35		10	0.206	0.182	0.23	0.15	0.248	0.0108	0.0341	16.6%	-4.22%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.8	0.615	0.985	0.25	1	0.0816	0.258	32.3%	0.0%
0.35		10	0.825	0.655	0.995	0.5	1	0.075	0.237	28.7%	-3.12%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.775	0.561	0.989	0.25	1	0.0946	0.299	38.6%	0.0%
0.35		10	0.825	0.655	0.995	0.5	1	0.075	0.237	28.7%	-6.45%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	4.5	4.8	4	4.8	5.1	6	4.2	4.9	4	5.7
0.35		4.5	4.9	5.2	4.5	6.1	6.1	4.3	4.9	3.8	4.8

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.141	0.149	0.233	0.188	0.177	0.224	0.148	0.191	0.237	0.288
0.35		0.248	0.175	0.234	0.15	0.208	0.229	0.219	0.162	0.239	0.195

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	0.25	1	1	0.5	0.75	1	0.75	0.75
0.35		0.5	1	0.75	1	1	1	0.5	1	0.5	1

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	0.25	1	1	0.25	0.75	1	0.75	0.75
0.35		0.5	1	0.75	1	1	1	0.5	1	0.5	1

CETIS Analytical Report

Report Date: 16 Feb-17 07:12 (p 1 of 4)
 Test Code: 49637001 oats | 06-2204-5342

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	07-6645-3701	Endpoint:	Mean Height	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:11	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	20-5543-5021	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:	16 Feb-17 07:10	Species:	Avena sativa	Brine:	
Duration:	864d 7h	Source:	Granite Seed Company	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	6.0%	Passes mean height

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	1.32	1.86	2.25	8	0.1110	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	6.4	6.4	1	1.75	0.2219	Non-Significant Effect
Error	29.184	3.648	8			
Total	35.584		9			

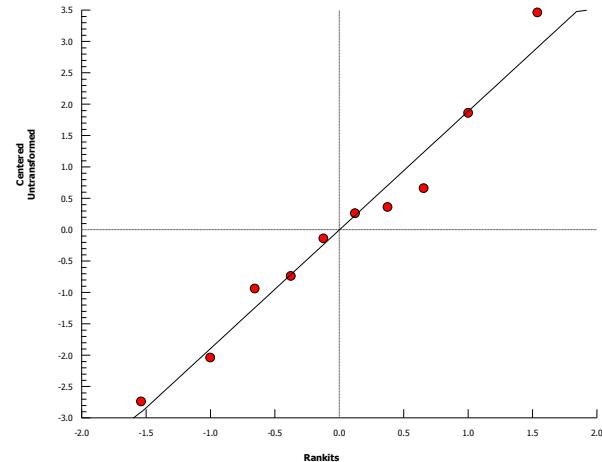
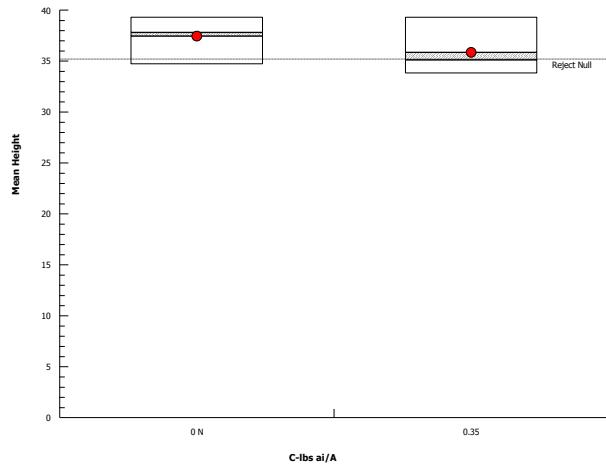
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.53	23.2	0.6920	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.975	0.741	0.9324	Normal Distribution

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5	37.4	35.3	39.6	37.8	34.7	39.3	0.76	4.54%	0.0%
0.35		5	35.8	33.2	38.4	35.1	33.8	39.3	0.939	5.86%	4.27%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:12 (p 2 of 4)
 Test Code: 49637001 oats | 06-2204-5342

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	00-7481-2066	Endpoint:	Mean Weight	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:11	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	20-5543-5021	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergen	Diluent:	
Ending Date:	16 Feb-17 07:10	Species:	Avena sativa	Brine:	
Duration:	864d 7h	Source:	Granite Seed Company	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	13.4%	Passes mean weight

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	0.879	1.86	0.012	8	0.2024	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.000081225	0.000081225	1	0.773	0.4048	Non-Significant Effect
Error	0.000840336	0.000105042	8			
Total	0.000921561		9			

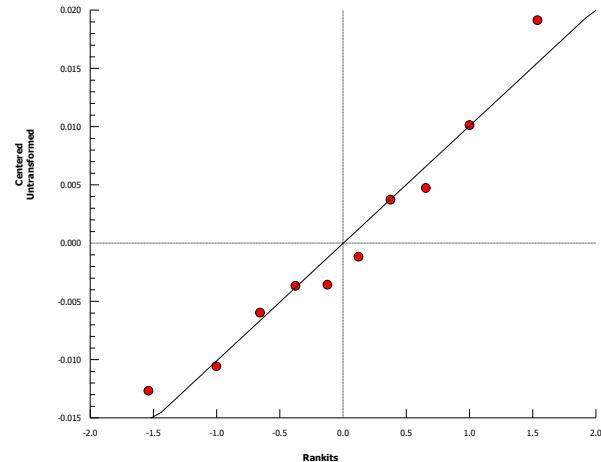
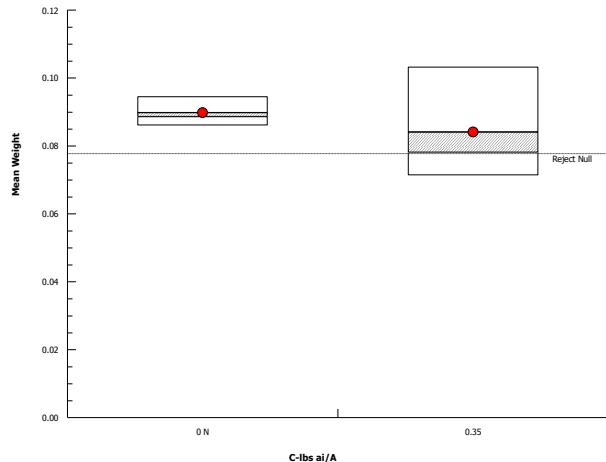
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	12.2	23.2	0.0329	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.957	0.741	0.7463	Normal Distribution

Mean Weight Summary

C-lbs ai/A	Control	Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5		0.0898	0.0848	0.0947	0.0886	0.0861	0.0945	0.00179	4.45%	0.0%
0.35			5	0.0841	0.0668	0.101	0.0781	0.0714	0.103	0.00623	16.6%	6.35%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:12 (p 3 of 4)
 Test Code: 49637001 oats | 06-2204-5342

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID: 09-0965-4169 **Endpoint:** Percent Emerged
Analyzed: 16 Feb-17 7:11 **Analysis:** Parametric-Two Sample **CETIS Version:** CETISv1.8.7
Official Results: Yes

Batch ID: 20-5543-5021 **Test Type:** Seedling Emergence Tier II
Start Date: 06 Oct-14 **Protocol:** OCSPP 850.4100 Plant Seedling Emergence
Ending Date: 16 Feb-17 07:10 **Species:** Avena sativa
Duration: 864d 7h **Source:** Granite Seed Company **Analyst:**
Diluent:
Brine:
Age:

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	14.1%	Passes percent emerged

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	-0.365	1.86	0.127	8	0.6378	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.0015625	0.0015625	1	0.133	0.7245	Non-Significant Effect
Error	0.09375	0.01171875	8			
Total	0.0953125		9			

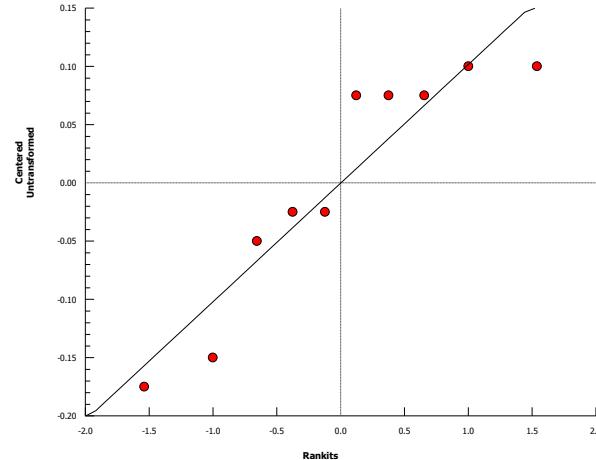
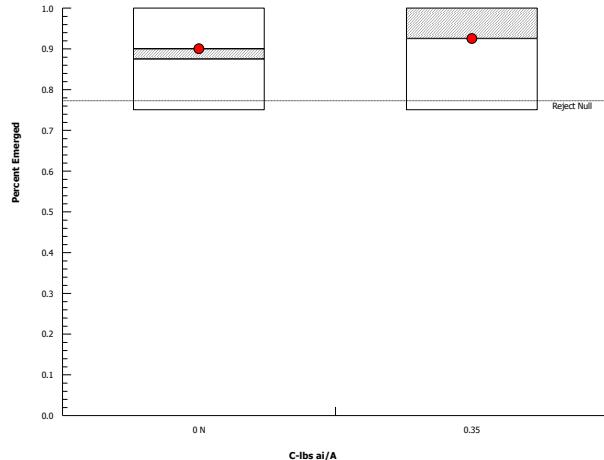
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.14	23.2	0.9001	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.855	0.741	0.0663	Normal Distribution

Percent Emerged Summary

C-lbs ai/A	Control	Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5	5	0.9	0.77	1	0.875	0.75	1	0.0468	11.6%	0.0%
0.35			5	0.925	0.786	1	1	0.75	1	0.05	12.1%	-2.78%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:12 (p 4 of 4)
 Test Code: 49637001 oats | 06-2204-5342

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	05-9219-6005	Endpoint:	Percent Survived	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:11	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	20-5543-5021	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:	16 Feb-17 07:10	Species:	Avena sativa	Brine:	
Duration:	864d 7h	Source:	Granite Seed Company	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	14.1%	Passes percent survived

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	-0.365	1.86	0.127	8	0.6378	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.0015625	0.0015625	1	0.133	0.7245	Non-Significant Effect
Error	0.09375	0.01171875	8			
Total	0.0953125		9			

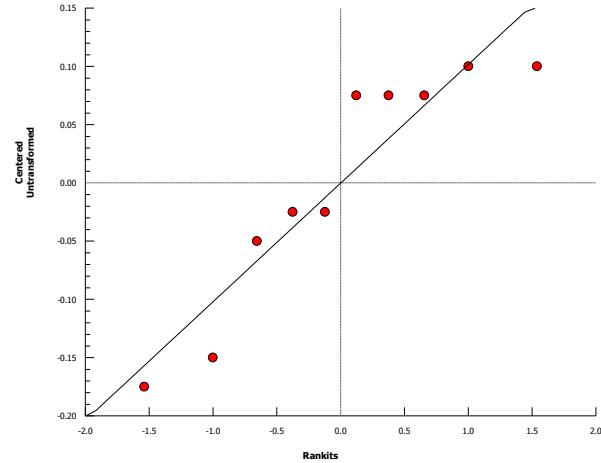
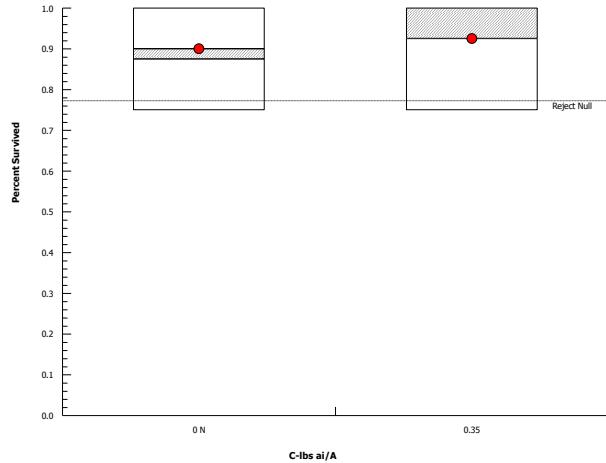
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.14	23.2	0.9001	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.855	0.741	0.0663	Normal Distribution

Percent Survived Summary

C-lbs ai/A	Control	Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5		0.9	0.77	1	0.875	0.75	1	0.0468	11.6%	0.0%
0.35			5	0.925	0.786	1	1	0.75	1	0.05	12.1%	-2.78%

Graphics



CETIS Summary Report

Report Date:

16 Feb-17 07:12 (p 1 of 1)

Test Code:

49637001 oats | 06-2204-5342

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)**Smithers Viscient**

Batch ID: 20-5543-5021	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date: 16 Feb-17 07:10	Species: Avena sativa	Brine:
Duration: 864d 7h	Source: Granite Seed Company	Age:
Sample ID: 07-0431-6978	Code: 49637001 oats	Client: CDM Smith - D. Worcester
Sample Date: 06 Oct-14	Material: Pymetrozine	Project:
Receive Date: 16 Feb-17 07:10	Source: Syngenta	
Sample Age: NA	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
07-6645-3701	Mean Height	0.35	>0.35	NA	6.0%		Equal Variance t Two-Sample Test
00-7481-2066	Mean Weight	0.35	>0.35	NA	13.4%		Equal Variance t Two-Sample Test
09-0965-4169	Percent Emerged	0.35	>0.35	NA	14.1%		Equal Variance t Two-Sample Test
05-9219-6005	Percent Survived	0.35	>0.35	NA	14.1%		Equal Variance t Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	37.4	35.3	39.6	34.7	39.3	0.76	1.7	4.54%	0.0%
0.35		5	35.8	33.2	38.4	33.8	39.3	0.939	2.1	5.86%	4.27%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.0898	0.0848	0.0947	0.0861	0.0945	0.00179	0.004	4.45%	0.0%
0.35		5	0.0841	0.0668	0.101	0.0714	0.103	0.00623	0.0139	16.6%	6.35%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.9	0.77	1	0.75	1	0.0468	0.105	11.6%	0.0%
0.35		5	0.925	0.786	1	0.75	1	0.05	0.112	12.1%	-2.78%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.9	0.77	1	0.75	1	0.0468	0.105	11.6%	0.0%
0.35		5	0.925	0.786	1	0.75	1	0.05	0.112	12.1%	-2.78%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	39.3	37.8	37.3	34.7	38.1
0.35		35.1	33.8	34.9	36.1	39.3

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.0935	0.0861	0.0945	0.0862	0.0886
0.35		0.0714	0.0942	0.0735	0.0781	0.103

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	0.75	0.875	0.875	
0.35		0.875	0.75	1	1	1

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	0.75	0.875	0.875	
0.35		0.875	0.75	1	1	1

CETIS Analytical Report

Report Date: 16 Feb-17 07:22 (p 1 of 4)
 Test Code: 49637001 oilsee | 01-2211-6523

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	15-3315-3139	Endpoint:	Mean Height	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:21	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	13-1350-2280	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergen	Diluent:	
Ending Date:	16 Feb-17 07:20	Species:	Brassica napus	Brine:	
Duration:	864d 7h	Source:	Johnston Seed Company	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	7.69%	Passes mean height

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	0.0841	1.73	0.412	18	0.4669	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.002	0.002	1	0.00708	0.9339	Non-Significant Effect
Error	5.088	0.2826667	18			
Total	5.09		19			

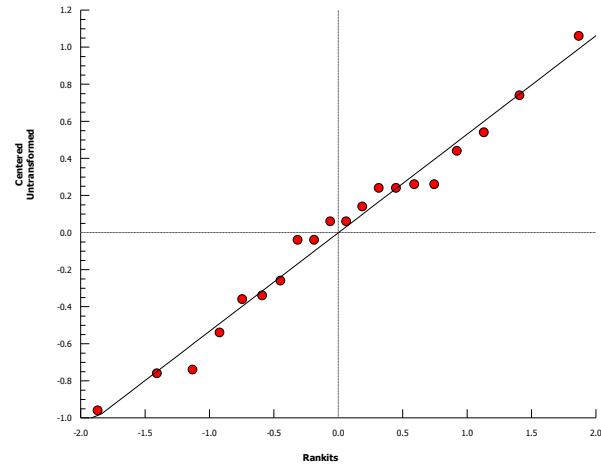
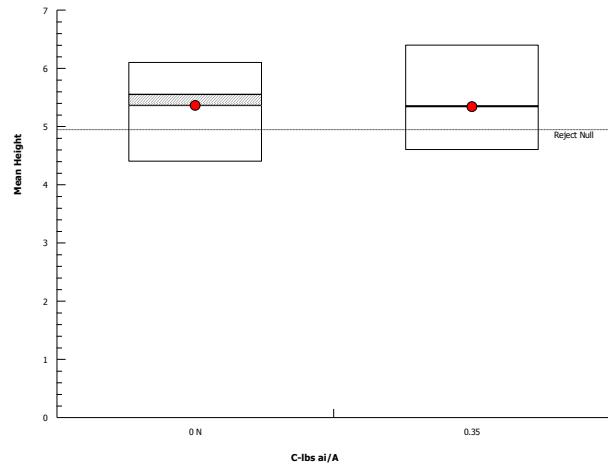
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.29	6.54	0.7125	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.98	0.866	0.9367	Normal Distribution

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	5.36	4.96	5.76	5.55	4.4	6.1	0.178	10.5%	0.0%
0.35		10	5.34	4.98	5.7	5.35	4.6	6.4	0.157	9.31%	0.37%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:22 (p 2 of 4)
 Test Code: 49637001 oilsee | 01-2211-6523

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID: 18-3108-3172 **Endpoint:** Mean Weight
Analyzed: 16 Feb-17 7:21 **Analysis:** Parametric-Two Sample **CETIS Version:** CETISv1.8.7
Official Results: Yes

Batch ID: 13-1350-2280 **Test Type:** Seedling Emergence Tier II
Start Date: 06 Oct-14 **Protocol:** OCSPP 850.4100 Plant Seedling Emergence
Ending Date: 16 Feb-17 07:20 **Species:** Brassica napus
Duration: 864d 7h **Source:** Johnston Seed Company **Analyst:**
Diluent:
Brine:
Age:

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	16.1%	Passes mean weight

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	-0.305	1.73	0.008	18	0.6181	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	1.02245E-05	1.02245E-05	1	0.0931	0.7638	Non-Significant Effect
Error	0.001976641	0.0001098134	18			
Total	0.001986865		19			

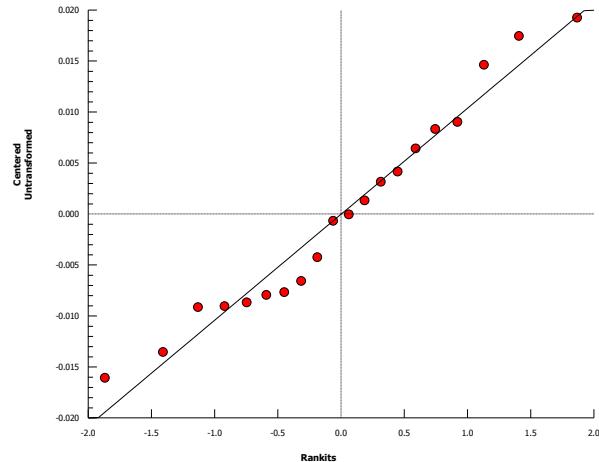
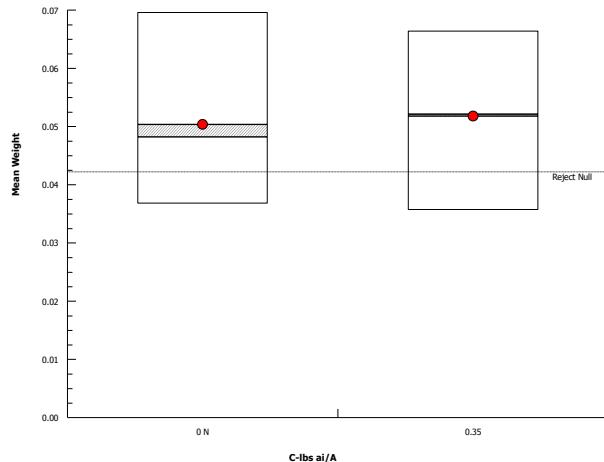
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.34	6.54	0.6682	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.956	0.866	0.4626	Normal Distribution

Mean Weight Summary

C-lbs ai/A	Control	Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10		0.0503	0.0423	0.0584	0.0482	0.0368	0.0696	0.00355	22.3%	0.0%
0.35			10	0.0518	0.0449	0.0587	0.0521	0.0357	0.0664	0.00306	18.7%	-2.84%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:22 (p 3 of 4)
 Test Code: 49637001 oilsee | 01-2211-6523

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID: 04-5615-1386 **Endpoint:** Percent Emerged
Analyzed: 16 Feb-17 7:21 **Analysis:** Nonparametric-Two Sample

CETIS Version: CETISv1.8.7
Official Results: Yes

Batch ID: 13-1350-2280 **Test Type:** Seedling Emergence Tier II
Start Date: 06 Oct-14 **Protocol:** OCSPP 850.4100 Plant Seedling Emergence
Ending Date: 16 Feb-17 07:20 **Species:** Brassica napus
Duration: 864d 7h **Source:** Johnston Seed Company

Analyst:
Diluent:
Brine:
Age:

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	7.61%	Passes percent emerged

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	110	NA	2	18	0.8947	Exact	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.003125	0.003125	1	0.36	0.5560	Non-Significant Effect
Error	0.15625	0.008680556	18			
Total	0.159375		19			

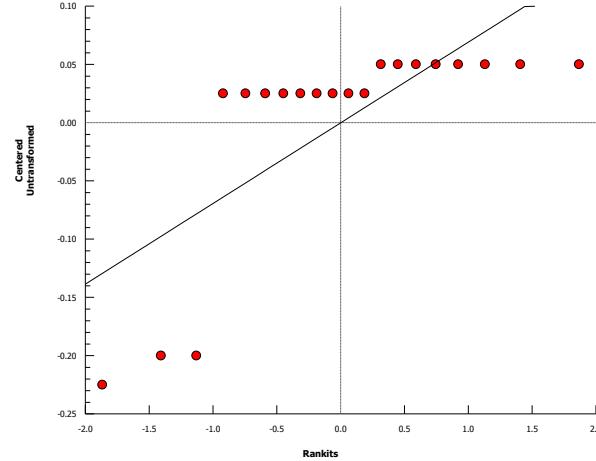
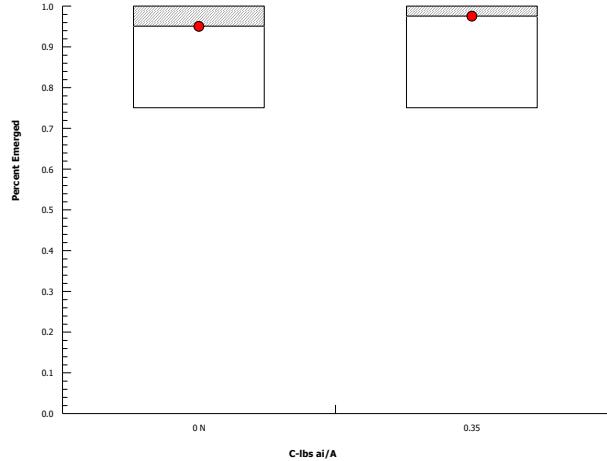
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.78	6.54	0.4043	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.544	0.866	<0.0001	Non-normal Distribution

Percent Emerged Summary

C-lbs ai/A	Control	Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0		Negative Control	10	0.95	0.875	1	1	0.75	1	0.033	11.1%	0.0%
0.35			10	0.975	0.918	1	1	0.75	1	0.025	8.11%	-2.63%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:22 (p 4 of 4)
 Test Code: 49637001 oilsee | 01-2211-6523

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID: 03-7451-2231 **Endpoint:** Percent Survived
Analyzed: 16 Feb-17 7:21 **Analysis:** Nonparametric-Two Sample **CETIS Version:** CETISv1.8.7
Official Results: Yes

Batch ID: 13-1350-2280 **Test Type:** Seedling Emergence Tier II
Start Date: 06 Oct-14 **Protocol:** OCSPP 850.4100 Plant Seedling Emergence
Ending Date: 16 Feb-17 07:20 **Species:** Brassica napus
Duration: 864d 7h **Source:** Johnston Seed Company **Analyst:**
Diluent:
Brine:
Age:

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	7.61%	Passes percent survived

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	110	NA	2	18	0.8947	Exact	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.003125	0.003125	1	0.36	0.5560	Non-Significant Effect
Error	0.15625	0.008680556	18			
Total	0.159375		19			

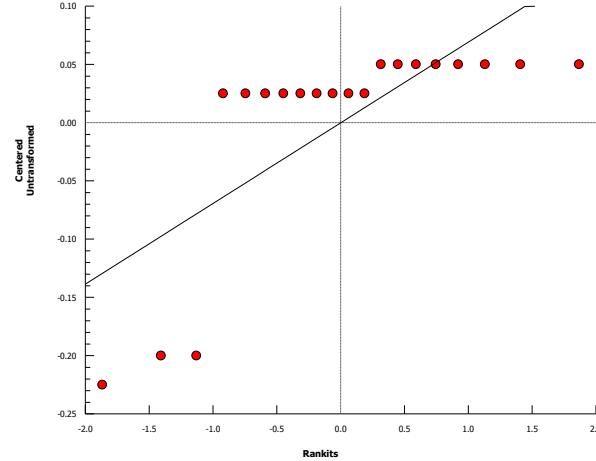
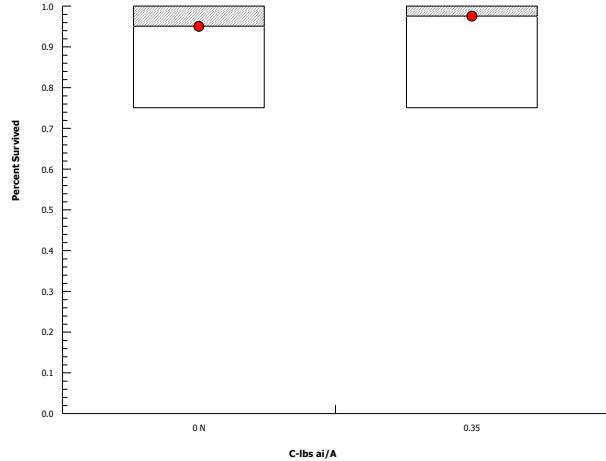
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.78	6.54	0.4043	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.544	0.866	<0.0001	Non-normal Distribution

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	0.95	0.875	1	1	0.75	1	0.0333	11.1%	0.0%
0.35		10	0.975	0.918	1	1	0.75	1	0.025	8.11%	-2.63%

Graphics



CETIS Summary Report

Report Date:

16 Feb-17 07:22 (p 1 of 1)

Test Code:

49637001 oilsee | 01-2211-6523

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)**Smithers Viscient**

Batch ID: 13-1350-2280	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date: 16 Feb-17 07:20	Species: Brassica napus	Brine:
Duration: 864d 7h	Source: Johnston Seed Company	Age:
Sample ID: 14-1417-3305	Code: 49637001 oilsee	Client: CDM Smith - D. Worcester
Sample Date: 06 Oct-14	Material: Pymetrozine	Project:
Receive Date: 16 Feb-17 07:20	Source: Syngenta	
Sample Age: NA	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
15-3315-3139	Mean Height	0.35	>0.35	NA	7.69%		Equal Variance t Two-Sample Test
18-3108-3172	Mean Weight	0.35	>0.35	NA	16.1%		Equal Variance t Two-Sample Test
04-5615-1386	Percent Emerged	0.35	>0.35	NA	7.61%		Wilcoxon Rank Sum Two-Sample Test
03-7451-2231	Percent Survived	0.35	>0.35	NA	7.61%		Wilcoxon Rank Sum Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	5.36	4.96	5.76	4.4	6.1	0.178	0.564	10.5%	0.0%
0.35		10	5.34	4.98	5.7	4.6	6.4	0.157	0.497	9.31%	0.37%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.0503	0.0423	0.0584	0.0368	0.0696	0.00355	0.0112	22.3%	0.0%
0.35		10	0.0518	0.0449	0.0587	0.0357	0.0664	0.00306	0.00968	18.7%	-2.84%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.95	0.875	1	0.75	1	0.0333	0.105	11.1%	0.0%
0.35		10	0.975	0.918	1	0.75	1	0.025	0.0791	8.11%	-2.63%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.95	0.875	1	0.75	1	0.0333	0.105	11.1%	0.0%
0.35		10	0.975	0.918	1	0.75	1	0.025	0.0791	8.11%	-2.63%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	5.8	5	4.4	5.6	5.1	5.5	6.1	4.6	5.6	5.9
0.35		5.4	5.6	5.4	4.8	4.6	5.3	6.4	5.3	5	5.6

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.0368	0.0412	0.0461	0.0545	0.0424	0.0696	0.0413	0.0503	0.0678	0.0535
0.35		0.0582	0.0357	0.0431	0.0511	0.0531	0.0608	0.0664	0.0452	0.0441	0.0601

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.75	0.75	1	1	1	1	1	1	1	1
0.35		1	1	1	1	1	0.75	1	1	1	1

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.75	0.75	1	1	1	1	1	1	1	1
0.35		1	1	1	1	1	0.75	1	1	1	1

CETIS Analytical Report

Report Date: 16 Feb-17 07:15 (p 1 of 4)
 Test Code: 49637001 onion | 06-4961-1601

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID: 20-3737-0928 **Endpoint:** Mean Height
Analyzed: 16 Feb-17 7:15 **Analysis:** Parametric-Two Sample **CETIS Version:** CETISv1.8.7
Official Results: Yes

Batch ID: 09-0928-8660 **Test Type:** Seedling Emergence Tier II
Start Date: 06 Oct-14 **Protocol:** OCSPP 850.4100 Plant Seedling Emergence
Ending Date: 16 Feb-17 07:13 **Species:** Allium cepa
Duration: 864d 7h **Source:** Park Seed Co. **Analyst:**
Diluent:
Brine:
Age:

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	7.17%	Passes mean height

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	0.558	1.86	0.733	8	0.2960	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.121	0.121	1	0.311	0.5921	Non-Significant Effect
Error	3.108	0.3885	8			
Total	3.229		9			

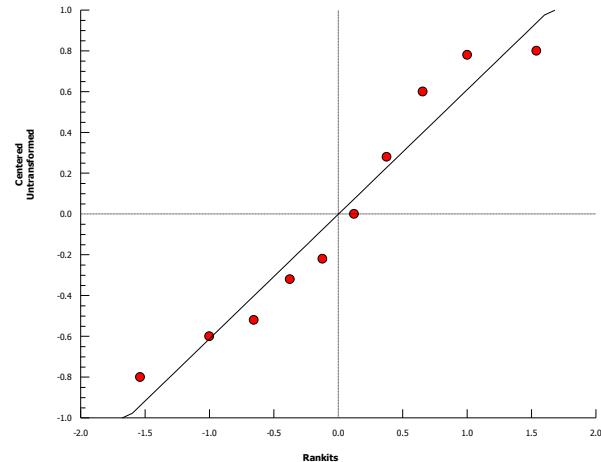
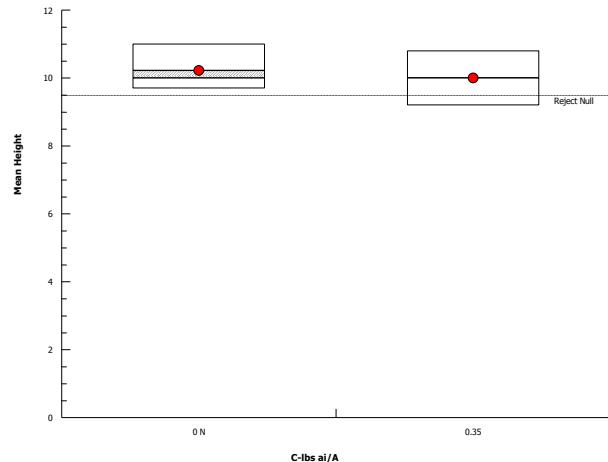
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.81	23.2	0.5813	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.924	0.741	0.3901	Normal Distribution

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5	10.2	9.57	10.9	10	9.7	11	0.235	5.15%	0.0%
0.35		5	10	9.12	10.9	10	9.2	10.8	0.316	7.07%	2.15%

Graphics



OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	03-3692-2533	Endpoint:	Mean Weight	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:14	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	09-0928-8660	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergen	Diluent:	
Ending Date:	16 Feb-17 07:13	Species:	Allium cepa	Brine:	
Duration:	864d 7h	Source:	Park Seed Co.	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	20.8%	Passes mean weight

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	-0.706	1.86	0.002	8	0.7499	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.000001089	0.000001089	1	0.498	0.5002	Non-Significant Effect
Error	0.00001748	0.000002185	8			
Total	0.000018569		9			

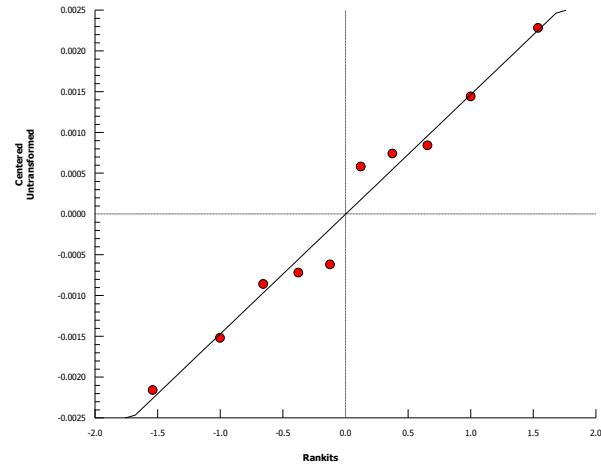
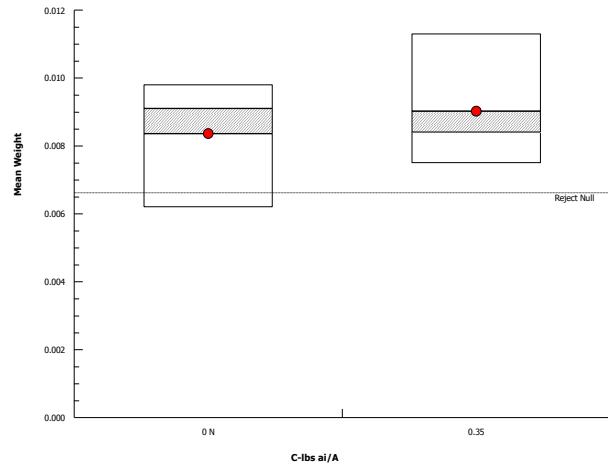
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1	23.2	0.9986	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.968	0.741	0.8687	Normal Distribution

Mean Weight Summary

C-lbs ai/A	Control	Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5		0.00836	0.00653	0.0102	0.0091	0.0062	0.0098	0.000661	17.7%	0.0%
0.35			5	0.00902	0.00718	0.0109	0.0084	0.0075	0.0113	0.000661	16.4%	-7.89%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:15 (p 3 of 4)
 Test Code: 49637001 onion | 06-4961-1601

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	08-7609-6938	Endpoint:	Percent Emerged	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:14	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	09-0928-8660	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:	16 Feb-17 07:13	Species:	Allium cepa	Brine:	
Duration:	864d 7h	Source:	Park Seed Co.	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	17.8%	Passes percent emerged

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	0.849	1.86	0.164	8	0.2104	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.0140625	0.0140625	1	0.72	0.4208	Non-Significant Effect
Error	0.15625	0.01953125	8			
Total	0.1703125		9			

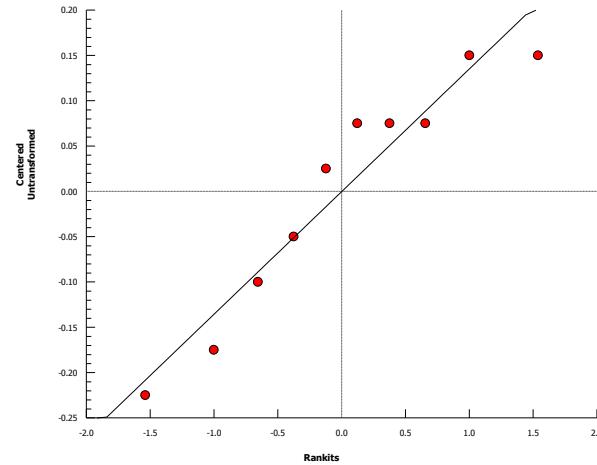
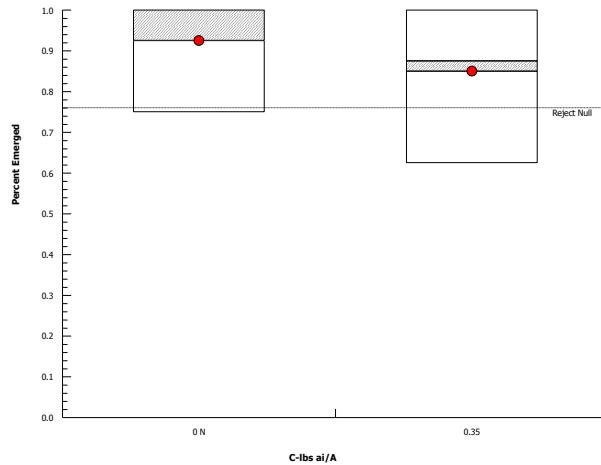
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	2.13	23.2	0.4833	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.909	0.741	0.2759	Normal Distribution

Percent Emerged Summary

C-lbs ai/A	Control	Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5		0.925	0.786	1	1	0.75	1	0.05	12.1%	0.0%
0.35			5	0.85	0.648	1	0.875	0.625	1	0.0729	19.2%	8.11%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:15 (p 4 of 4)
 Test Code: 49637001 onion | 06-4961-1601

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID: 17-0193-2954 **Endpoint:** Percent Survived
Analyzed: 16 Feb-17 7:14 **Analysis:** Parametric-Two Sample **CETIS Version:** CETISv1.8.7
Official Results: Yes

Batch ID: 09-0928-8660 **Test Type:** Seedling Emergence Tier II
Start Date: 06 Oct-14 **Protocol:** OCSPP 850.4100 Plant Seedling Emergence
Ending Date: 16 Feb-17 07:13 **Species:** Allium cepa
Duration: 864d 7h **Source:** Park Seed Co.

Analyst:
Diluent:
Brine:
Age:

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	17.8%	Passes percent survived

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	0.849	1.86	0.164	8	0.2104	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.0140625	0.0140625	1	0.72	0.4208	Non-Significant Effect
Error	0.15625	0.01953125	8			
Total	0.1703125		9			

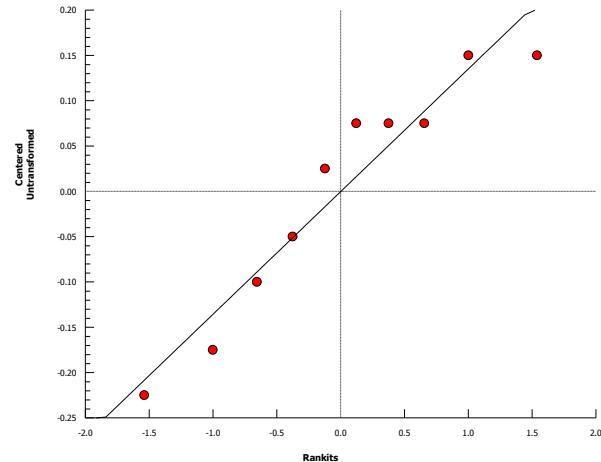
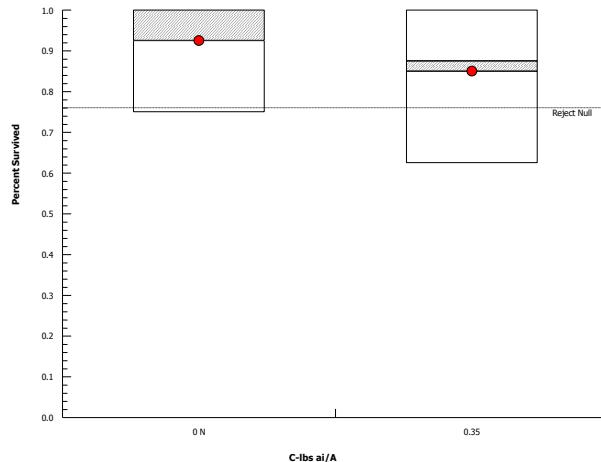
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	2.13	23.2	0.4833	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.909	0.741	0.2759	Normal Distribution

Percent Survived Summary

C-lbs ai/A	Control	Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5		0.925	0.786	1	1	0.75	1	0.05	12.1%	0.0%
0.35			5	0.85	0.648	1	0.875	0.625	1	0.0729	19.2%	8.11%

Graphics



CETIS Summary Report

Report Date:

16 Feb-17 07:15 (p 1 of 1)

Test Code:

49637001 onion | 06-4961-1601

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)**Smithers Viscient**

Batch ID: 09-0928-8660	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date: 16 Feb-17 07:13	Species: Allium cepa	Brine:
Duration: 864d 7h	Source: Park Seed Co.	Age:
Sample ID: 08-0175-3514	Code: 49637001 onion	Client: CDM Smith - D. Worcester
Sample Date: 06 Oct-14	Material: Pymetrozine	Project:
Receive Date: 16 Feb-17 07:13	Source: Syngenta	
Sample Age: NA	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
20-3737-0928	Mean Height	0.35	>0.35	NA	7.17%		Equal Variance t Two-Sample Test
03-3692-2533	Mean Weight	0.35	>0.35	NA	20.8%		Equal Variance t Two-Sample Test
08-7609-6938	Percent Emerged	0.35	>0.35	NA	17.8%		Equal Variance t Two-Sample Test
17-0193-2954	Percent Survived	0.35	>0.35	NA	17.8%		Equal Variance t Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	10.2	9.57	10.9	9.7	11	0.235	0.526	5.15%	0.0%
0.35		5	10	9.12	10.9	9.2	10.8	0.316	0.707	7.07%	2.15%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.00836	0.00653	0.0102	0.0062	0.0098	0.000661	0.00148	17.7%	0.0%
0.35		5	0.00902	0.00718	0.0109	0.0075	0.0113	0.000661	0.00148	16.4%	-7.89%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.925	0.786	1	0.75	1	0.05	0.112	12.1%	0.0%
0.35		5	0.85	0.648	1	0.625	1	0.0729	0.163	19.2%	8.11%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.925	0.786	1	0.75	1	0.05	0.112	12.1%	0.0%
0.35		5	0.85	0.648	1	0.625	1	0.0729	0.163	19.2%	8.11%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	11	9.9	10	10.5	9.7
0.35		9.2	10.8	10.6	10	9.4

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.0098	0.0092	0.0075	0.0091	0.0062
0.35		0.0084	0.0096	0.0113	0.0083	0.0075

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	0.875	1	1	0.75
0.35		0.75	1	0.625	1	0.875

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	0.875	1	1	0.75
0.35		0.75	1	0.625	1	0.875

CETIS Analytical Report

Report Date: 16 Feb-17 07:25 (p 1 of 4)
 Test Code: 49637001 radish | 01-5230-1964

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID: 01-9792-2649 **Endpoint:** Mean Height
Analyzed: 16 Feb-17 7:25 **Analysis:** Parametric-Two Sample **CETIS Version:** CETISv1.8.7
Official Results: Yes

Batch ID: 06-1442-6294 **Test Type:** Seedling Emergence Tier II
Start Date: 06 Oct-14 **Protocol:** OCSPP 850.4100 Plant Seedling Emergence
Ending Date: 16 Feb-17 07:23 **Species:** Raphanus sativus
Duration: 864d 7h **Source:** Park Seed Co. **Analyst:**
Diluent:
Brine:
Age:

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	8.45%	Passes mean height

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	0.073	1.73	0.238	18	0.4713	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.0005	0.0005	1	0.00533	0.9426	Non-Significant Effect
Error	1.689	0.09383333	18			
Total	1.6895		19			

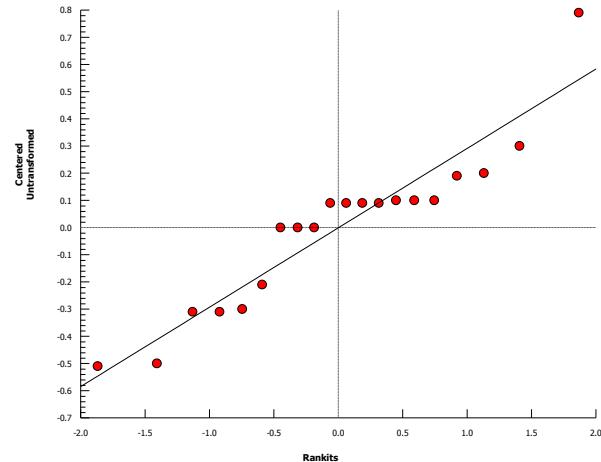
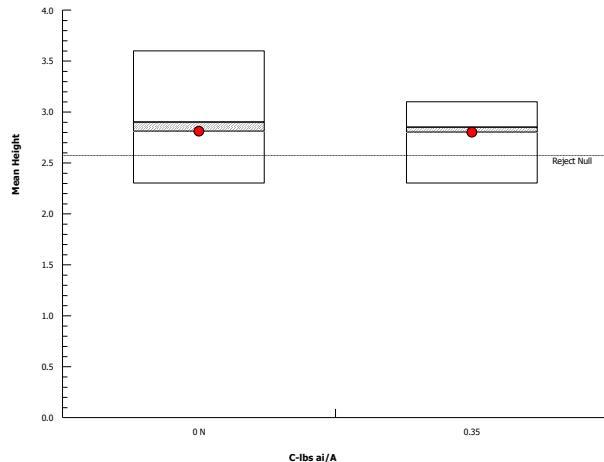
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	2.38	6.54	0.2130	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.905	0.866	0.0519	Normal Distribution

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	2.81	2.55	3.07	2.9	2.3	3.6	0.115	12.9%	0.0%
0.35		10	2.8	2.63	2.97	2.85	2.3	3.1	0.0745	8.42%	0.36%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:25 (p 2 of 4)
 Test Code: 49637001 radish | 01-5230-1964

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	18-2691-8429	Endpoint:	Mean Weight	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:25	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	06-1442-6294	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:	16 Feb-17 07:23	Species:	Raphanus sativus	Brine:	
Duration:	864d 7h	Source:	Park Seed Co.	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	12.2%	Passes mean weight

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	0.41	1.73	0.011	18	0.3432	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.0000338	0.0000338	1	0.168	0.6863	Non-Significant Effect
Error	0.003611038	0.0002006132	18			
Total	0.003644838		19			

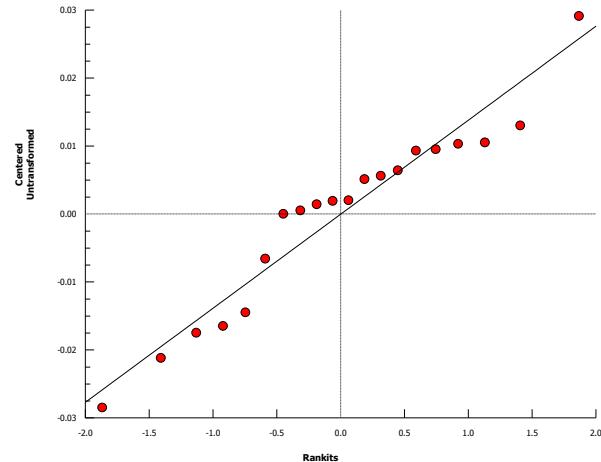
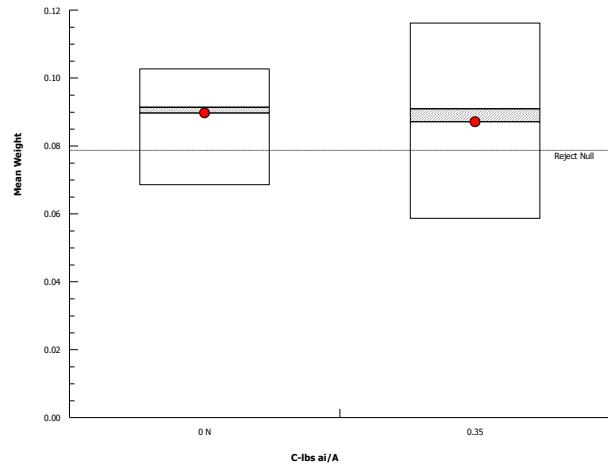
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	2.44	6.54	0.2002	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.943	0.866	0.2726	Normal Distribution

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	0.0897	0.082	0.0974	0.0914	0.0685	0.103	0.00342	12.0%	0.0%
0.35		10	0.0871	0.075	0.0992	0.0909	0.0586	0.116	0.00533	19.4%	2.9%

Graphics

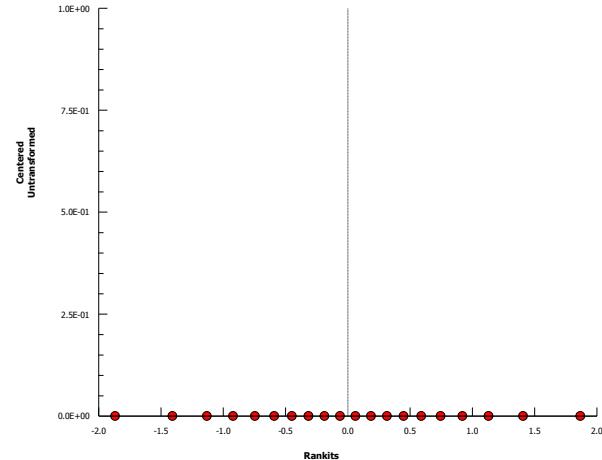
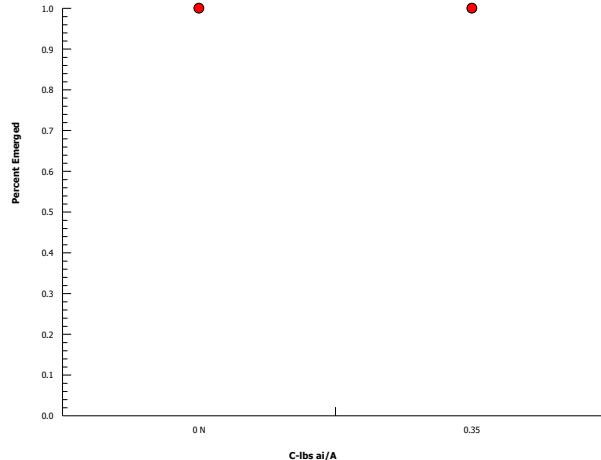


CETIS Analytical Report

Report Date: 16 Feb-17 07:25 (p 3 of 4)
Test Code: 49637001 radish | 01-5230-1964

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)					Smithers Viscient						
Analysis ID:	03-6297-9127	Endpoint:	Percent Emerged		CETIS Version:	CETISv1.8.7					
Analyzed:	16 Feb-17 7:25	Analysis:	Parametric-Two Sample		Official Results:	Yes					
Batch ID:	06-1442-6294	Test Type:	Seedling Emergence Tier II		Analyst:						
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergen		Diluent:						
Ending Date:	16 Feb-17 07:23	Species:	Raphanus sativus		Brine:						
Duration:	864d 7h	Source:	Park Seed Co.		Age:						
Data Transform	Zeta	Alt Hyp	Trials	Seed	Test Result						
Untransformed	NA	C > T	NA	NA	Passes percent emerged						
Equal Variance t Two-Sample Test											
Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)		
Negative Control		0.35	0	1.73		18	1.0000	CDF	Non-Significant Effect		
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat		P-Value	Decision($\alpha:5\%$)		
Between	0		0		1	65500		<0.0001	Significant Effect		
Error	0		0		18						
Total	0		0		19						
Percent Emerged Summary											
C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	1	1	1	1	1	1	0	0.0%	0.0%
0.35		10	1	1	1	1	1	1	0	0.0%	0.0%

Graphics

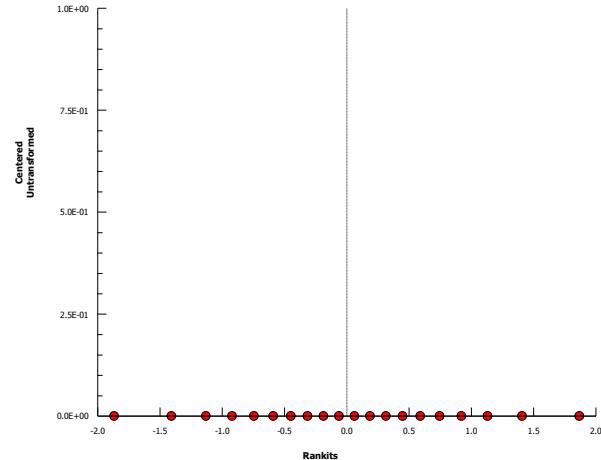
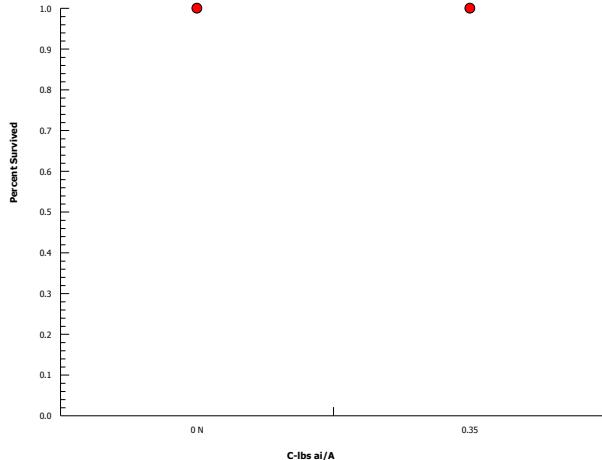


CETIS Analytical Report

Report Date: 16 Feb-17 07:25 (p 4 of 4)
 Test Code: 49637001 radish | 01-5230-1964

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)					Smithers Viscient						
Analysis ID: 07-8450-2885 Analyzed: 16 Feb-17 7:24		Endpoint: Percent Survived Analysis: Parametric-Two Sample			CETIS Version: CETISv1.8.7 Official Results: Yes						
Batch ID: 06-1442-6294	Test Type: Seedling Emergence Tier II			Analyst:							
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen			Diluent:							
Ending Date: 16 Feb-17 07:23	Species: Raphanus sativus			Brine:							
Duration: 864d 7h	Source: Park Seed Co.			Age:							
Data Transform	Zeta	Alt Hyp	Trials	Seed	Test Result						
Untransformed	NA	C > T	NA	NA	Passes percent survived						
Equal Variance t Two-Sample Test											
Control	vs C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)			
Negative Control	0.35	0	1.73		18	1.0000	CDF	Non-Significant Effect			
ANOVA Table											
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)					
Between	0	0	1	65500	<0.0001	Significant Effect					
Error	0	0	18								
Total	0		19								
Percent Survived Summary											
C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	1	1	1	1	1	1	0	0.0%	0.0%
0.35		10	1	1	1	1	1	1	0	0.0%	0.0%

Graphics



CETIS Summary Report

Report Date: 16 Feb-17 07:26 (p 1 of 1)
 Test Code: 49637001 radish | 01-5230-1964

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Batch ID:	06-1442-6294	Test Type:	Seedling Emergence Tier II	Analyst:
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date:	16 Feb-17 07:23	Species:	Raphanus sativus	Brine:
Duration:	864d 7h	Source:	Park Seed Co.	Age:
Sample ID:	17-6792-6645	Code:	49637001 radish	Client: CDM Smith - D. Worcester
Sample Date:	06 Oct-14	Material:	Pymetrozine	Project:
Receive Date:	16 Feb-17 07:23	Source:	Syngenta	
Sample Age:	NA	Station:		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
01-9792-2649	Mean Height	0.35	>0.35	NA	8.45%		Equal Variance t Two-Sample Test
18-2691-8429	Mean Weight	0.35	>0.35	NA	12.2%		Equal Variance t Two-Sample Test
03-6297-9127	Percent Emerged	0.35	>0.35	NA	NA		Equal Variance t Two-Sample Test
07-8450-2885	Percent Survived	0.35	>0.35	NA	NA		Equal Variance t Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	2.81	2.55	3.07	2.3	3.6	0.115	0.363	12.9%	0.0%
0.35		10	2.8	2.63	2.97	2.3	3.1	0.0745	0.236	8.42%	0.36%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.0897	0.082	0.0974	0.0685	0.103	0.00342	0.0108	12.0%	0.0%
0.35		10	0.0871	0.075	0.0992	0.0586	0.116	0.00533	0.0169	19.4%	2.9%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	1	1	1	1	1	0	0	0.0%	0.0%
0.35		10	1	1	1	1	1	0	0	0.0%	0.0%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	1	1	1	1	1	0	0	0.0%	0.0%
0.35		10	1	1	1	1	1	0	0	0.0%	0.0%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	2.9	3.6	2.9	2.9	3	2.6	2.5	2.3	2.5	2.9
0.35		2.9	2.9	3	2.5	2.3	2.8	3.1	2.8	2.8	2.9

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.0685	0.103	0.0732	0.0948	0.0902	0.099	0.0961	0.0916	0.0911	0.0897
0.35		0.0976	0.116	0.0966	0.0891	0.0586	0.0974	0.0696	0.0726	0.0805	0.0927

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	1	1	1	1	1	1	1	1
0.35		1	1	1	1	1	1	1	1	1	1

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	1	1	1	1	1	1	1	1
0.35		1	1	1	1	1	1	1	1	1	1

CETIS Analytical Report

Report Date: 16 Feb-17 07:18 (p 1 of 4)
 Test Code: 49637001 ryegra | 02-3908-4890

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	09-6983-1059	Endpoint:	Mean Height	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:18	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	17-8501-1296	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:	16 Feb-17 07:16	Species:	Lolium perenne	Brine:	
Duration:	864d 7h	Source:	Granite Seed Company	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	8.74%	Passes mean height

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	0.0222	1.86	1.67	8	0.4914	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.001	0.001	1	0.000495	0.9828	Non-Significant Effect
Error	16.168	2.021	8			
Total	16.169		9			

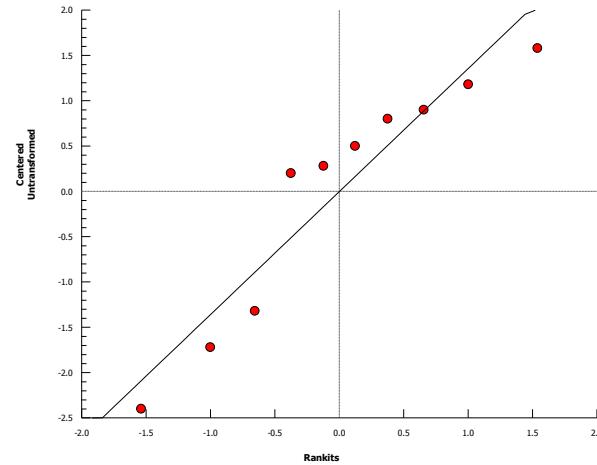
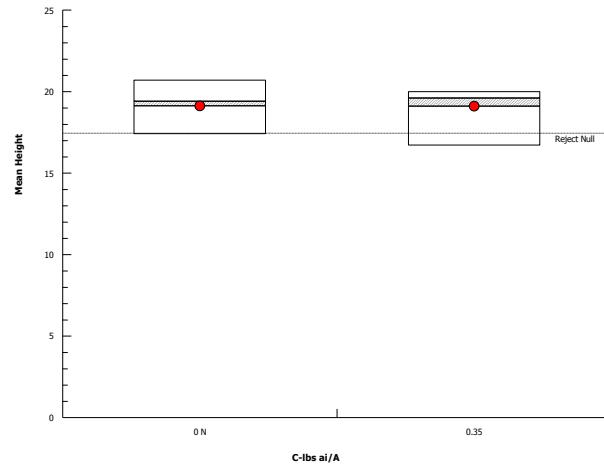
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.16	23.2	0.8918	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.891	0.741	0.1746	Normal Distribution

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5	19.1	17.3	20.9	19.4	17.4	20.7	0.658	7.7%	0.0%
0.35		5	19.1	17.4	20.8	19.6	16.7	20	0.612	7.17%	0.11%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:18 (p 2 of 4)
 Test Code: 49637001 ryegra | 02-3908-4890

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	04-7555-0761	Endpoint:	Mean Weight	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:18	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	17-8501-1296	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:	16 Feb-17 07:16	Species:	Lolium perenne	Brine:	
Duration:	864d 7h	Source:	Granite Seed Company	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	35.7%	Passes mean weight

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	0.596	1.86	0.006	8	0.2838	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.000010816	0.000010816	1	0.355	0.5676	Non-Significant Effect
Error	0.000243528	0.000030441	8			
Total	0.000254344		9			

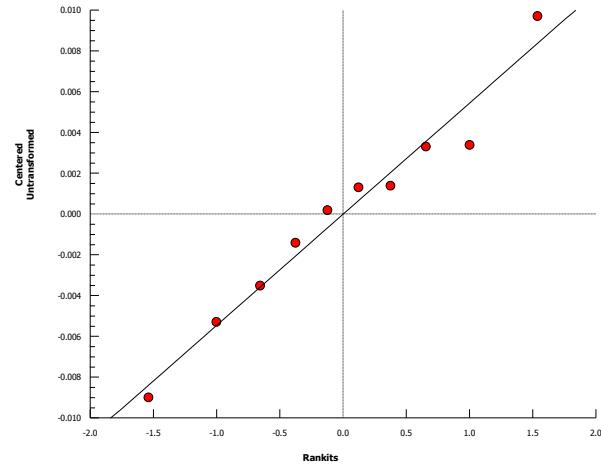
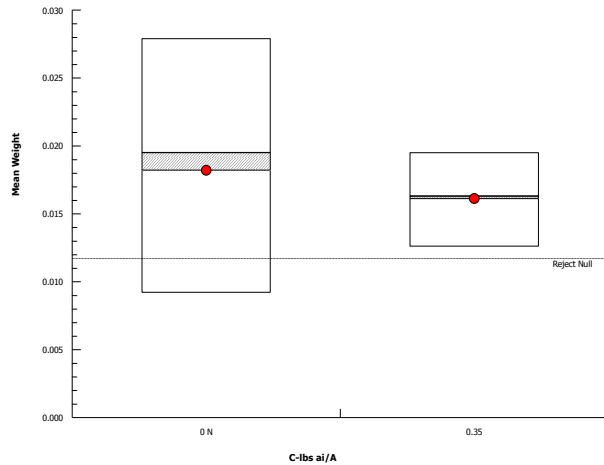
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	7.77	23.2	0.0721	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.978	0.741	0.9549	Normal Distribution

Mean Weight Summary

C-lbs ai/A	Control	Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5		0.0182	0.00908	0.0273	0.0195	0.0092	0.0279	0.00328	40.4%	0.0%
0.35			5	0.0161	0.0128	0.0194	0.0163	0.0126	0.0195	0.00118	16.3%	11.4%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:18 (p 3 of 4)
 Test Code: 49637001 ryegra | 02-3908-4890

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	18-7894-7193	Endpoint:	Percent Emerged	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:18	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	17-8501-1296	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:	16 Feb-17 07:16	Species:	Lolium perenne	Brine:	
Duration:	864d 7h	Source:	Granite Seed Company	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	16.9%	Passes percent emerged

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	-0.667	1.86	0.139	8	0.7381	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.00625	0.00625	1	0.444	0.5237	Non-Significant Effect
Error	0.1125	0.0140625	8			
Total	0.11875		9			

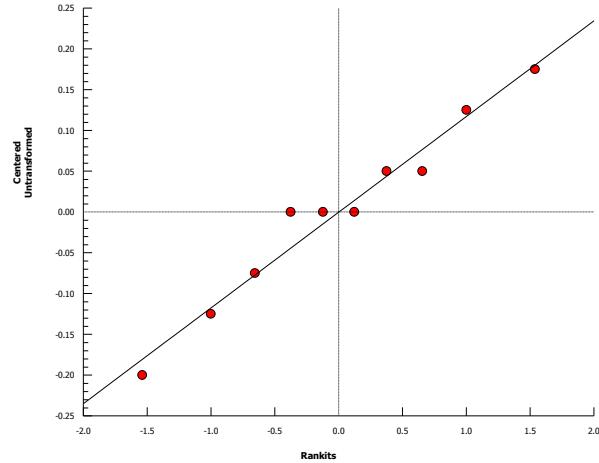
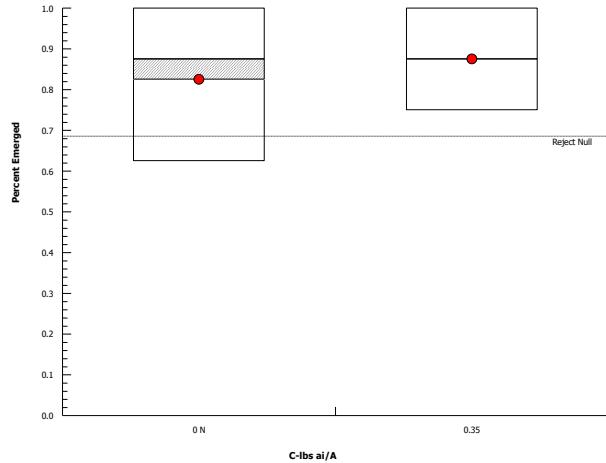
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	2.6	23.2	0.3772	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.97	0.741	0.8896	Normal Distribution

Percent Emerged Summary

C-lbs ai/A	Control	Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5		0.825	0.648	1	0.875	0.625	1	0.0637	17.3%	0.0%
0.35			5	0.875	0.765	0.985	0.875	0.75	1	0.0395	10.1%	-6.06%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:18 (p 4 of 4)
 Test Code: 49637001 ryegra | 02-3908-4890

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID: 20-5631-5060 **Endpoint:** Percent Survived
Analyzed: 16 Feb-17 7:18 **Analysis:** Parametric-Two Sample **CETIS Version:** CETISv1.8.7
Official Results: Yes

Batch ID: 17-8501-1296 **Test Type:** Seedling Emergence Tier II
Start Date: 06 Oct-14 **Protocol:** OCSPP 850.4100 Plant Seedling Emergence
Ending Date: 16 Feb-17 07:16 **Species:** Lolium perenne
Duration: 864d 7h **Source:** Granite Seed Company **Analyst:**
Diluent:
Brine:
Age:

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	16.9%	Passes percent survived

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	-0.667	1.86	0.139	8	0.7381	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.00625	0.00625	1	0.444	0.5237	Non-Significant Effect
Error	0.1125	0.0140625	8			
Total	0.11875		9			

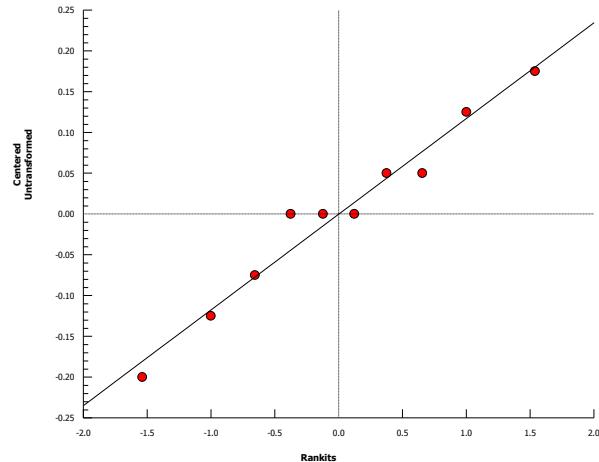
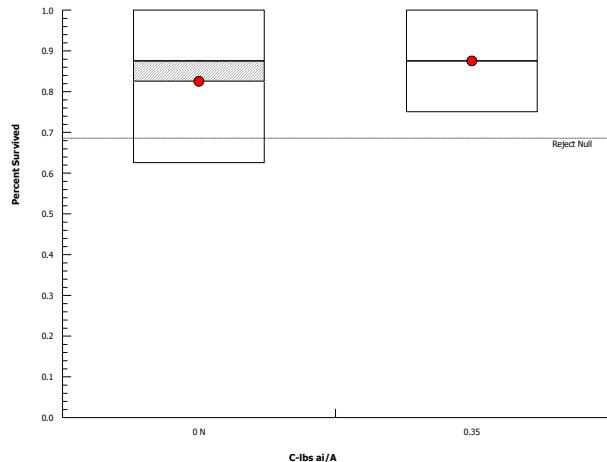
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	2.6	23.2	0.3772	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.97	0.741	0.8896	Normal Distribution

Percent Survived Summary

C-lbs ai/A	Control	Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5		0.825	0.648	1	0.875	0.625	1	0.0637	17.3%	0.0%
0.35			5	0.875	0.765	0.985	0.875	0.75	1	0.0395	10.1%	-6.06%

Graphics



CETIS Summary Report

Report Date:

16 Feb-17 07:19 (p 1 of 1)

Test Code:

49637001 ryegra | 02-3908-4890

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)**Smithers Viscient**

Batch ID: 17-8501-1296	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date: 16 Feb-17 07:16	Species: Lolium perenne	Brine:
Duration: 864d 7h	Source: Granite Seed Company	Age:
Sample ID: 10-5859-4638	Code: 49637001 ryegra	Client: CDM Smith - D. Worcester
Sample Date: 06 Oct-14	Material: Pymetrozine	Project:
Receive Date: 16 Feb-17 07:16	Source: Syngenta	
Sample Age: NA	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
09-6983-1059	Mean Height	0.35	>0.35	NA	8.74%		Equal Variance t Two-Sample Test
04-7555-0761	Mean Weight	0.35	>0.35	NA	35.7%		Equal Variance t Two-Sample Test
18-7894-7193	Percent Emerged	0.35	>0.35	NA	16.9%		Equal Variance t Two-Sample Test
20-5631-5060	Percent Survived	0.35	>0.35	NA	16.9%		Equal Variance t Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	19.1	17.3	20.9	17.4	20.7	0.658	1.47	7.7%	0.0%
0.35		5	19.1	17.4	20.8	16.7	20	0.612	1.37	7.17%	0.11%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.0182	0.00908	0.0273	0.0092	0.0279	0.00328	0.00734	40.4%	0.0%
0.35		5	0.0161	0.0128	0.0194	0.0126	0.0195	0.00118	0.00263	16.3%	11.4%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.825	0.648	1	0.625	1	0.0637	0.143	17.3%	0.0%
0.35		5	0.875	0.765	0.985	0.75	1	0.0395	0.0884	10.1%	-6.06%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.825	0.648	1	0.625	1	0.0637	0.143	17.3%	0.0%
0.35		5	0.875	0.765	0.985	0.75	1	0.0395	0.0884	10.1%	-6.06%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	17.4	20.7	20.3	17.8	19.4
0.35		19.3	16.7	19.6	19.9	20

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.0215	0.0195	0.0092	0.0279	0.0129
0.35		0.0147	0.0126	0.0175	0.0163	0.0195

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.625	0.875	1	0.75	0.875
0.35		0.875	0.75	1	0.875	0.875

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.625	0.875	1	0.75	0.875
0.35		0.875	0.75	1	0.875	0.875

CETIS Analytical Report

Report Date: 16 Feb-17 07:29 (p 1 of 4)
 Test Code: 49637001 soybea | 07-2862-9401

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	11-7422-6686	Endpoint:	Mean Height	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:28	Analysis:	Parametric-Two Sample	Official Results:	Yes

Batch ID:	18-4157-0799	Test Type:	Seedling Emergence Tier II	Analyst:
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:
Ending Date:	16 Feb-17 07:27	Species:	Glycine max	Brine:
Duration:	864d 7h	Source:	Johnny's Selected Seeds, ME	Age:

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	8.92%	Fails mean height

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35*	2.56	1.73	1.83	18	0.0099	CDF	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	36.1805	36.1805	1	6.53	0.0199	Significant Effect
Error	99.757	5.542056	18			
Total	135.9375		19			

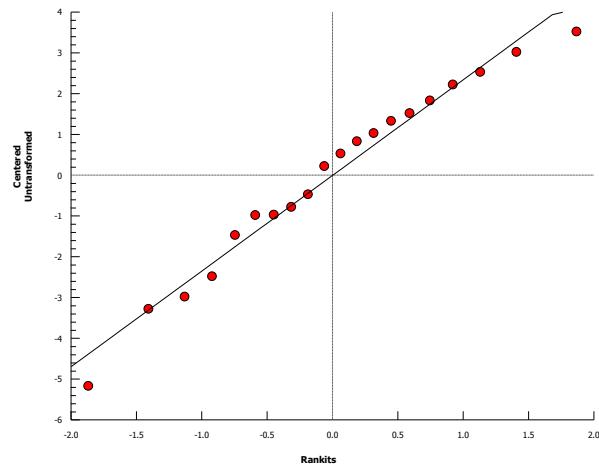
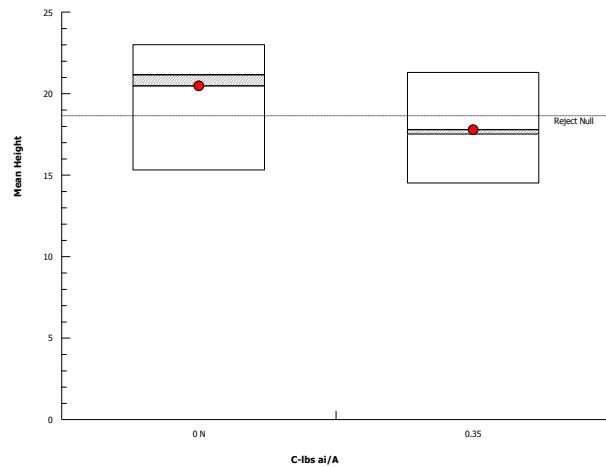
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.29	6.54	0.7123	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.971	0.866	0.7700	Normal Distribution

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	20.5	18.9	22	21.1	15.3	23	0.696	10.8%	0.0%
0.35		10	17.8	16	19.6	17.5	14.5	21.3	0.79	14.0%	13.1%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:29 (p 2 of 4)
 Test Code: 49637001 soybea | 07-2862-9401

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	21-2687-8909	Endpoint:	Mean Weight	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:28	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	18-4157-0799	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:	16 Feb-17 07:27	Species:	Glycine max	Brine:	
Duration:	864d 7h	Source:	Johnny's Selected Seeds, ME	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	12.6%	Passes mean weight

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	0.706	1.73	0.043	18	0.2448	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.00149472	0.00149472	1	0.498	0.4895	Non-Significant Effect
Error	0.05404897	0.00300272	18			
Total	0.05554369		19			

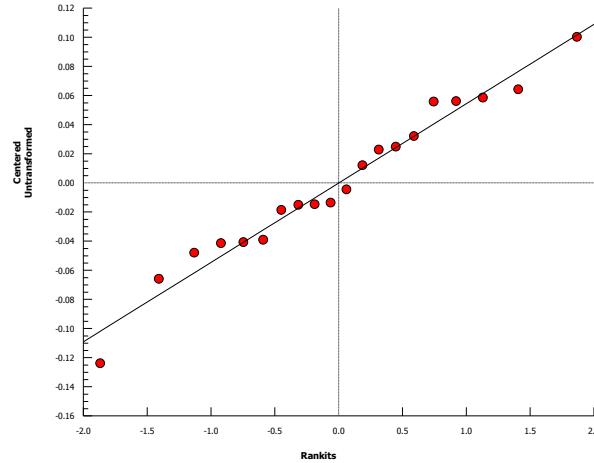
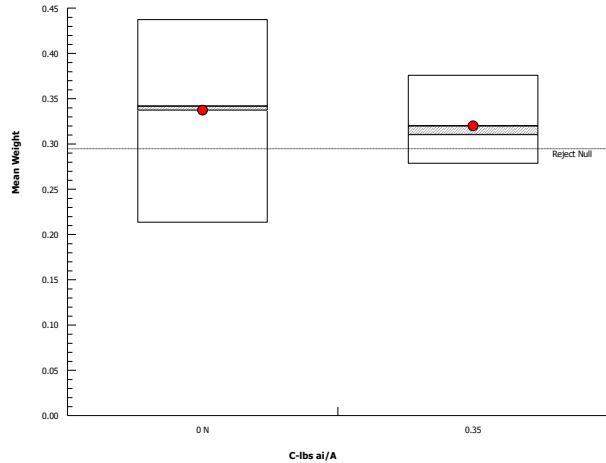
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	3.22	6.54	0.0963	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.976	0.866	0.8658	Normal Distribution

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	0.337	0.289	0.386	0.342	0.213	0.437	0.0214	20.1%	0.0%
0.35		10	0.32	0.293	0.347	0.31	0.278	0.376	0.0119	11.8%	5.13%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:29 (p 3 of 4)
 Test Code: 49637001 soybea | 07-2862-9401

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	10-7379-5682	Endpoint:	Percent Emerged	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:28	Analysis:	Nonparametric-Two Sample	Official Results:	Yes
Batch ID:	18-4157-0799	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:	16 Feb-17 07:27	Species:	Glycine max	Brine:	
Duration:	864d 7h	Source:	Johnny's Selected Seeds, ME	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	21.8%	Passes percent emerged

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	134	NA	2	18	0.9973	Exact	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.3125	0.3125	1	8.04	0.0110	Significant Effect
Error	0.7	0.03888889	18			
Total	1.0125		19			

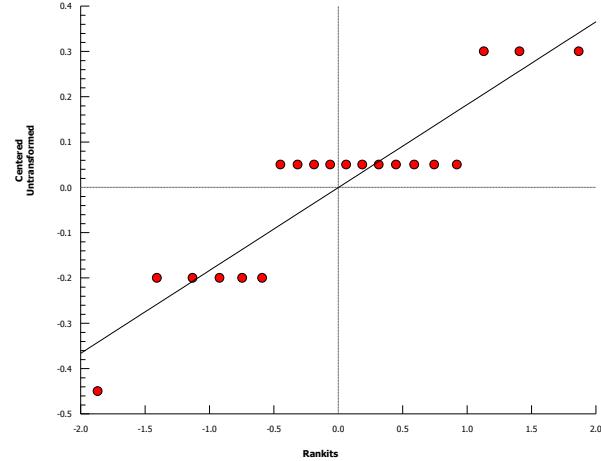
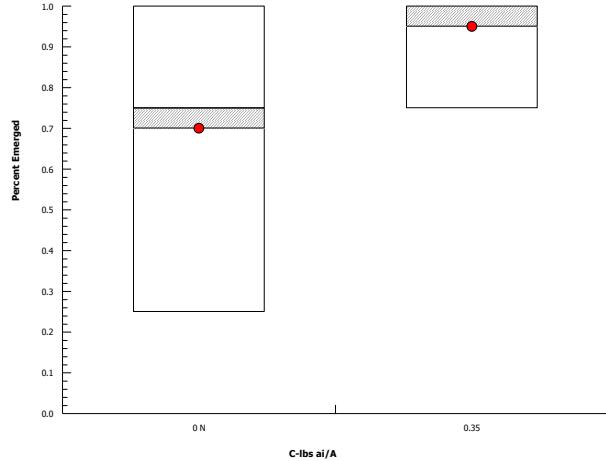
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	6	6.54	0.0135	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.85	0.866	0.0053	Non-normal Distribution

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	0.7	0.515	0.885	0.75	0.25	1	0.0816	36.9%	0.0%
0.35		10	0.95	0.875	1	1	0.75	1	0.0333	11.1%	-35.7%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:29 (p 4 of 4)
 Test Code: 49637001 soybea | 07-2862-9401

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	06-7446-2151	Endpoint:	Percent Survived	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:28	Analysis:	Nonparametric-Two Sample	Official Results:	Yes
Batch ID:	18-4157-0799	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:	16 Feb-17 07:27	Species:	Glycine max	Brine:	
Duration:	864d 7h	Source:	Johnny's Selected Seeds, ME	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	21.8%	Passes percent survived

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	134	NA	2	18	0.9973	Exact	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.3125	0.3125	1	8.04	0.0110	Significant Effect
Error	0.7	0.03888889	18			
Total	1.0125		19			

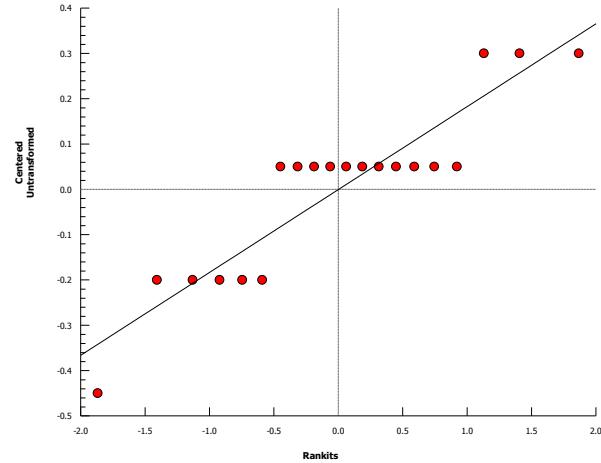
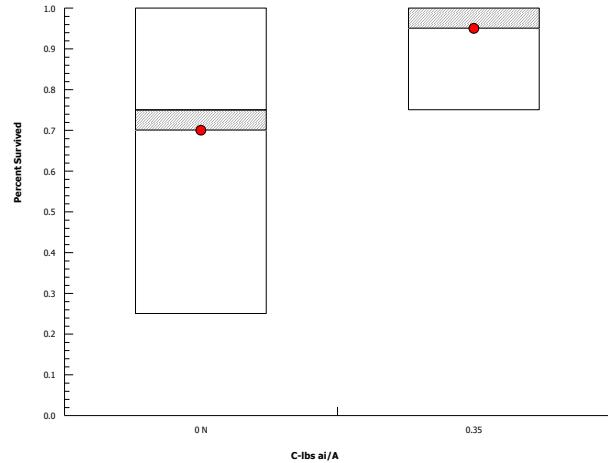
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	6	6.54	0.0135	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.85	0.866	0.0053	Non-normal Distribution

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	0.7	0.515	0.885	0.75	0.25	1	0.0816	36.9%	0.0%
0.35		10	0.95	0.875	1	1	0.75	1	0.0333	11.1%	-35.7%

Graphics



CETIS Summary Report

Report Date: 16 Feb-17 07:29 (p 1 of 1)
Test Code: 49637001 soybea | 07-2862-9401

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)**Smithers Viscient**

Batch ID: 18-4157-0799	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date: 16 Feb-17 07:27	Species: Glycine max	Brine:
Duration: 864d 7h	Source: Johnny's Selected Seeds, ME	Age:
Sample ID: 09-4789-3277	Code: 49637001 soybea	Client: CDM Smith - D. Worcester
Sample Date: 06 Oct-14	Material: Pymetrozine	Project:
Receive Date: 16 Feb-17 07:27	Source: Syngenta	
Sample Age: NA	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
11-7422-6686	Mean Height	<0.35	0.35	NA	8.92%		Equal Variance t Two-Sample Test
21-2687-8909	Mean Weight	0.35	>0.35	NA	12.6%		Equal Variance t Two-Sample Test
10-7379-5682	Percent Emerged	0.35	>0.35	NA	21.8%		Wilcoxon Rank Sum Two-Sample Test
06-7446-2151	Percent Survived	0.35	>0.35	NA	21.8%		Wilcoxon Rank Sum Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	20.5	18.9	22	15.3	23	0.696	2.2	10.8%	0.0%
0.35		10	17.8	16	19.6	14.5	21.3	0.79	2.5	14.0%	13.1%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.337	0.289	0.386	0.213	0.437	0.0214	0.0677	20.1%	0.0%
0.35		10	0.32	0.293	0.347	0.278	0.376	0.0119	0.0377	11.8%	5.13%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.7	0.515	0.885	0.25	1	0.0816	0.258	36.9%	0.0%
0.35		10	0.95	0.875	1	0.75	1	0.0333	0.105	11.1%	-35.7%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.7	0.515	0.885	0.25	1	0.0816	0.258	36.9%	0.0%
0.35		10	0.95	0.875	1	0.75	1	0.0333	0.105	11.1%	-35.7%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	21	21.8	23	19.5	19	21.5	21.3	15.3	22.3	20
0.35		10	16.8	14.5	15.3	14.8	20	17	21.3	19.3	20.8

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.36	0.319	0.437	0.324	0.401	0.396	0.271	0.213	0.289	0.362
0.35		10	0.305	0.278	0.352	0.279	0.332	0.281	0.315	0.305	0.376

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.5	1	0.75	0.5	0.25	0.5	1	1	0.75	0.75
0.35		10	1	1	1	0.75	1	1	0.75	1	1

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.5	1	0.75	0.5	0.25	0.5	1	1	0.75	0.75
0.35		10	1	1	1	0.75	1	1	0.75	1	1

CETIS Analytical Report

Report Date: 16 Feb-17 07:32 (p 1 of 4)
 Test Code: 49637001 tomato | 13-8250-6445

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	08-3584-5222	Endpoint:	Mean Height	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:32	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	06-0162-3872	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:	16 Feb-17 07:30	Species:	Lycopersicon esculentum	Brine:	
Duration:	864d 8h	Source:	Tomato Growers Supply Company	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	14.3%	Passes mean height

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	0.711	1.73	1.02	18	0.2430	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.882	0.882	1	0.506	0.4859	Non-Significant Effect
Error	31.366	1.742555	18			
Total	32.248		19			

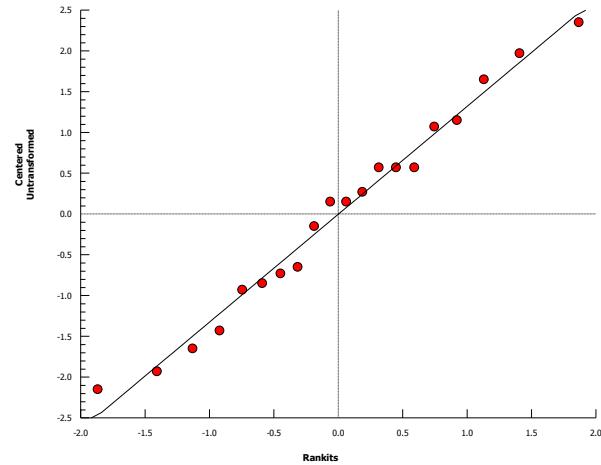
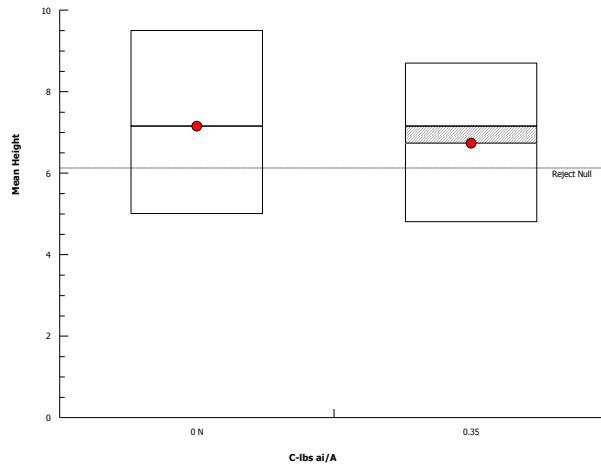
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1.37	6.54	0.6475	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.975	0.866	0.8522	Normal Distribution

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	7.15	6.13	8.17	7.15	5	9.5	0.449	19.8%	0.0%
0.35		10	6.73	5.86	7.6	7.15	4.8	8.7	0.384	18.0%	5.87%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:32 (p 2 of 4)
 Test Code: 49637001 tomato | 13-8250-6445

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID: 12-4013-2737 **Endpoint:** Mean Weight
Analyzed: 16 Feb-17 7:32 **Analysis:** Parametric-Two Sample **CETIS Version:** CETISv1.8.7
Official Results: Yes

Batch ID: 06-0162-3872 **Test Type:** Seedling Emergence Tier II
Start Date: 06 Oct-14 **Protocol:** OCSPP 850.4100 Plant Seedling Emergence
Ending Date: 16 Feb-17 07:30 **Species:** Lycopersicon esculentum
Duration: 864d 8h **Source:** Tomato Growers Supply Company **Analyst:**
Diluent:
Brine:
Age:

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	35.0%	Passes mean weight

Equal Variance t Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	-1.07	1.73	0.016	18	0.8509	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.000516128	0.000516128	1	1.15	0.2982	Non-Significant Effect
Error	0.008095434	0.0004497463	18			
Total	0.008611562		19			

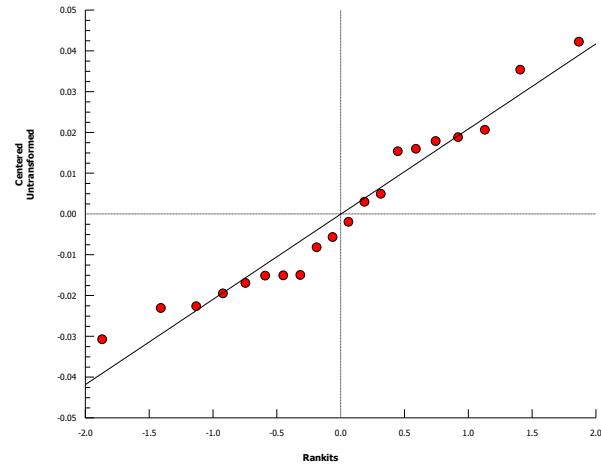
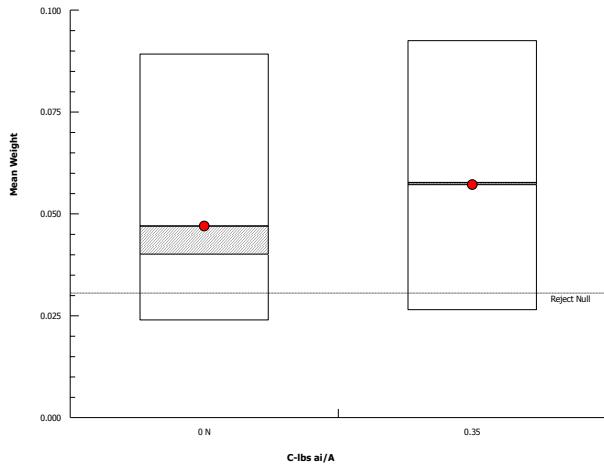
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	1	6.54	0.9991	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.944	0.866	0.2885	Normal Distribution

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	0.047	0.0318	0.0622	0.04	0.0239	0.0892	0.00671	45.1%	0.0%
0.35		10	0.0571	0.042	0.0723	0.0576	0.0264	0.0925	0.00671	37.1%	-21.6%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:32 (p 3 of 4)
 Test Code: 49637001 tomato | 13-8250-6445

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID: 18-1558-0681 **Endpoint:** Percent Emerged
Analyzed: 16 Feb-17 7:32 **Analysis:** Nonparametric-Two Sample **CETIS Version:** CETISv1.8.7
Official Results: Yes

Batch ID: 06-0162-3872 **Test Type:** Seedling Emergence Tier II
Start Date: 06 Oct-14 **Protocol:** OCSPP 850.4100 Plant Seedling Emergence
Ending Date: 16 Feb-17 07:30 **Species:** Lycopersicon esculentum
Duration: 864d 8h **Source:** Tomato Growers Supply Company
Analyst:
Diluent:
Brine:
Age:

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	8.51%	Passes percent emerged

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	90	NA	2	18	0.1517	Exact	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.028125	0.028125	1	2.45	0.1346	Non-Significant Effect
Error	0.20625	0.01145833	18			
Total	0.234375		19			

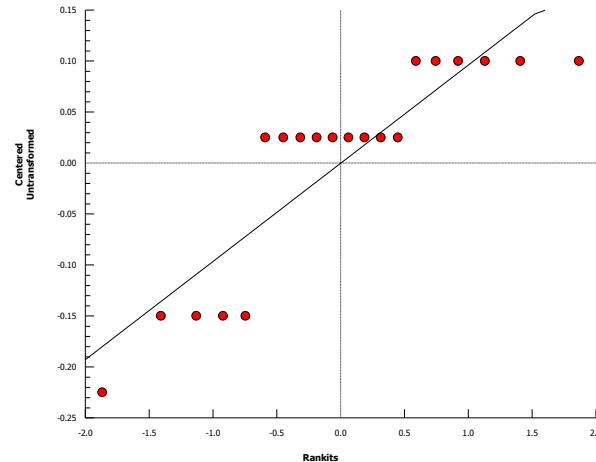
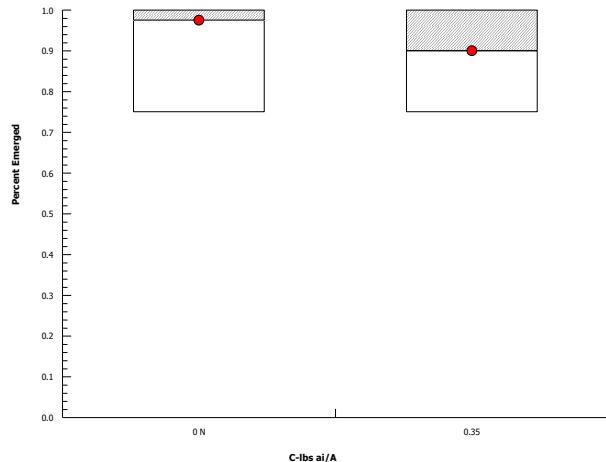
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	2.67	6.54	0.1601	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.785	0.866	0.0005	Non-normal Distribution

Percent Emerged Summary

C-lbs ai/A	Control	Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0		Negative Control	10	0.975	0.918	1	1	0.75	1	0.025	8.11%	0.0%
0.35			10	0.9	0.808	0.992	1	0.75	1	0.0408	14.3%	7.69%

Graphics



CETIS Analytical Report

Report Date: 16 Feb-17 07:32 (p 4 of 4)
 Test Code: 49637001 tomato | 13-8250-6445

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Analysis ID:	16-5087-2509	Endpoint:	Percent Survived	CETIS Version:	CETISv1.8.7
Analyzed:	16 Feb-17 7:32	Analysis:	Nonparametric-Two Sample	Official Results:	Yes
Batch ID:	06-0162-3872	Test Type:	Seedling Emergence Tier II	Analyst:	
Start Date:	06 Oct-14	Protocol:	OCSPP 850.4100 Plant Seedling Emergence	Diluent:	
Ending Date:	16 Feb-17 07:30	Species:	Lycopersicon esculentum	Brine:	
Duration:	864d 8h	Source:	Tomato Growers Supply Company	Age:	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	8.51%	Passes percent survived

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-lbs ai/A	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision($\alpha:5\%$)
Negative Control		0.35	90	NA	2	18	0.1517	Exact	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision($\alpha:5\%$)
Between	0.028125	0.028125	1	2.45	0.1346	Non-Significant Effect
Error	0.20625	0.01145833	18			
Total	0.234375		19			

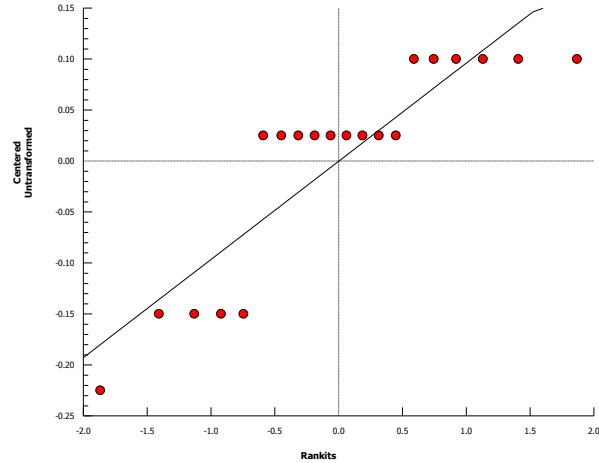
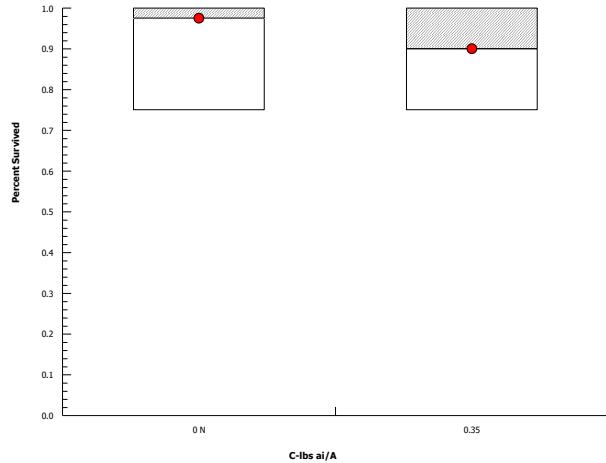
Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision($\alpha:1\%$)
Variances	Variance Ratio F	2.67	6.54	0.1601	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.785	0.866	0.0005	Non-normal Distribution

Percent Survived Summary

C-lbs ai/A	Control	Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	10	0.975	0.918	1	1	0.75	1	0.025	8.11%	0.0%	
0.35		10	0.9	0.808	0.992	1	0.75	1	0.0408	14.3%	7.69%	

Graphics



CETIS Summary Report

Report Date: 16 Feb-17 07:33 (p 1 of 1)
Test Code: 49637001 tomato | 13-8250-6445

OCSPP 850.4100 Terrestrial Plant Tier II (Seedling Emergence)

Smithers Viscient

Batch ID: 06-0162-3872	Test Type: Seedling Emergence Tier II	Analyst:
Start Date: 06 Oct-14	Protocol: OCSPP 850.4100 Plant Seedling Emergen	Diluent:
Ending Date: 16 Feb-17 07:30	Species: Lycopersicon esculentum	Brine:
Duration: 864d 8h	Source: Tomato Growers Supply Company	Age:
Sample ID: 03-5333-3661	Code: 49637001 tomato	Client: CDM Smith - D. Worcester
Sample Date: 06 Oct-14	Material: Pymetrozine	Project:
Receive Date: 16 Feb-17 07:30	Source: Syngenta	
Sample Age: NA	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
08-3584-5222	Mean Height	0.35	>0.35	NA	14.3%		Equal Variance t Two-Sample Test
12-4013-2737	Mean Weight	0.35	>0.35	NA	35.0%		Equal Variance t Two-Sample Test
18-1558-0681	Percent Emerged	0.35	>0.35	NA	8.51%		Wilcoxon Rank Sum Two-Sample Test
16-5087-2509	Percent Survived	0.35	>0.35	NA	8.51%		Wilcoxon Rank Sum Two-Sample Test

Mean Height Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	7.15	6.13	8.17	5	9.5	0.449	1.42	19.8%	0.0%
0.35		10	6.73	5.86	7.6	4.8	8.7	0.384	1.21	18.0%	5.87%

Mean Weight Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.047	0.0318	0.0622	0.0239	0.0892	0.00671	0.0212	45.1%	0.0%
0.35		10	0.0572	0.042	0.0723	0.0264	0.0925	0.00671	0.0212	37.1%	-21.6%

Percent Emerged Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.975	0.918	1	0.75	1	0.025	0.0791	8.11%	0.0%
0.35		10	0.9	0.808	0.992	0.75	1	0.0408	0.129	14.3%	7.69%

Percent Survived Summary

C-lbs ai/A	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	10	0.975	0.918	1	0.75	1	0.025	0.0791	8.11%	0.0%
0.35		10	0.9	0.808	0.992	0.75	1	0.0408	0.129	14.3%	7.69%

Mean Height Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	6.5	6.3	7.3	7.3	7	9.5	5.5	5	8.8	8.3
0.35		7	5.3	7.3	4.8	7.8	8.7	6	7.3	7.3	5.8

Mean Weight Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	0.032	0.0319	0.0413	0.0519	0.0388	0.0892	0.0239	0.0275	0.0658	0.0676
0.35		0.0552	0.0345	0.0731	0.0264	0.0725	0.0925	0.042	0.075	0.0601	0.0402

Percent Emerged Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	1	0.75	1	1	1	1	1	1
0.35		1	0.75	0.75	1	1	0.75	1	1	0.75	1

Percent Survived Detail

C-lbs ai/A	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	1	0.75	1	1	1	1	1	1
0.35		1	0.75	0.75	1	1	0.75	1	1	0.75	1